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The New international year book

THE NEW INTERNATIONAL YEAR BOOK

A COMPENDIUM OF THE WORLD'S
PROGRESS

FOR THE YEAR

1921

EDITOR

FRANK MOORE COLBY, M.A.

NEW YORK

DODD, MEAD AND COMPANY

1922

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PREFACE

The leading topics in the present volume—the twentieth since the work began in 1898 and the fifteenth in the new series beginning in 1907—include among others the following: The Washington Conference for the Limitation of Armament discussed under WAR OF THE NATIONS and NAVAL PROGRESS with text of agreements reached before the end of the year and summary of debates on the several issues; the conflicting policies of France and her Allies; the war between Greece and Turkey; the Upper Silesian Settlement; the reversal of Russian Soviet policy; the fall of exchange and the financial chaos in the countries of Europe; the question of German solvency; the menace of revolt in Egypt and India; the movement for Irish independence and the settlement reached at the end of the year; the second year of the League of Nations; Unemployment; the first ten months of the Harding administration, etc. Outside the political field the articles on industrial subjects, social economics, and applied science are of especial importance, including RAILWAYS, SHIPBUILDING, SHIPPING, WATER POWER, RADIO-TELEGRAPHY AND TELEPHONY, AËRONAUTICS, AGRICULTURE, CITY PLANNING, and the groups of articles on Sanitary Engineering, and on the respective industries and their products.

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THE NEW INTERNATIONAL YEAR BOOK

A

ABBOTT, IRA ANSON. Judge, formerly justice of the supreme court in New Mexico territory, died, October 19. He was born at Barnard, Vt., July 20, 1845, and served as a private in the Vermont Volunteers in the last year of the Civil War; graduated at Dartmouth in 1870. He began the practice of law at Haverhill, Mass., in 1872. In 1898 he was made judge of the Massachusetts central district court of northern Essex and in 1904 was appointed by President Roosevelt associate justice of the supreme court of New Mexico and was reappointed by President Taft. He returned to Haverhill, Mass., when New Mexico became a State in 1912, and passed the rest of his life in travel and in writing for the periodicals.

ABYSSINIA. A monarchy of northern Africa bounded on the north and east by Eritrea, the French Somali coast, British Somaliland, and Italian Somaliland; on the south by Italian Somaliland, and British East Africa or Kenya; and on the west by the Sudan; with an area of about 350,000 square miles and a population estimated at over 8,000,000. The capital is Addis Abeba, with a population of from 40,000 to 50,000; other towns are: Harar, with a population of about 50,000; Adua, 5000; Axum, about 5000, Mahdera-Mariam, 4000. It contains the following nine provinces: (1) Harar and dependencies; (2) Wollo; (3) Kassa and Magi; (4) Gore; (5) Tigré; (6) Damot and Gojon; (7) the Equatorial Province; (8) Gondar; (9) Gima or Jimma. Its independence was recognized by the convention of Addis Abeba between Italy and King Menelik, and its frontiers were fixed by treaties with Great Britain and Italy. These two Powers along with France signed an agreement, Dec. 13, 1906, for the preservation of its integrity and for a mutual policy in the matter of concessions, each of the three Powers engaging to take no advantage to the injury of either of the others. It was agreed that they would abstain from interference in the internal affairs of the country, but would act conjointly for the protection of the interests of their possessions on the border.

The inhabitants who are of the Semitic origin consist of four race groups: The Gallas and Somalis in the south and southwest; the Tigris in the north; the Danakils in the east; the Shoans

in the centre. Of these the Shoans are the ruling people and number about 1,500,000. Most of them are trained to arms. The Tigris formerly the ruling class of Ethiopia are of lighter complexion and plainly of Semitic type. The Danakils who are Mohammedans inhabit regions not easily accessible and maintain partial independence. In the southwest negroes are found and in the northeast there is a Jewish tribe known as the Fálashas together with a number of aliens in the towns. Since the fourth century the bulk of the inhabitants have been Christians and they have remained members of the Alexandrian Church under the head bishop or Abuna who is always a Copt appointed by the Coptic Patriarch of Alexandria, subject to a native church authority known as the Echegheh. The priests and other church dignitaries are said to number about 100,000. Illiteracy prevails, education being chiefly confined to the clergy in spite of the edict of October, 1907, which required education of all males over the age of twelve. Justice is in the hands of the provincial governors and chiefs, subject to appeal to the emperor.

The main pursuits are agriculture and grazing. A form of feudalism exists, the land belonging theoretically to the Negus or Emperor; and there is hardly any idea of private property in land. Although the soil is capable of producing several crops, culture is backward. Cotton, sugar, dates, coffee and the vine are cultivated to some extent, and coffee has lately increased somewhat in production. Exports amounted to 6364 metric tons in 1916. Other native products are hides and skins, wheat, barley, millet, tobacco and gesho. Manufacturing is backward, but in some districts hatchets, knives, spears and other instruments are made. Placer gold-mining is carried on in some parts of the country, and other minerals are found, including iron, sulphur, copper, and silver. The chief trade route is the French Ethiopian railway, but there is a large caravan trade in the interior. The chief exports are hides and skins, coffee, wax, civet and butter, and to a less extent spices, gums, gold, and rubber. The imports come chiefly from England, France, India, Italy and the United States, and comprise for the most part manufactures including cotton goods, arms and munitions, liquors, railway materials, sugar, and

petroleum. No general figures of foreign trade were available, but the total trade between Abyssinia and Great Britain in 1920 was: Imports from Great Britain £81,628; exports to Great Britain £8986.

The means of transportation have not been developed, and in the absence of railways and good roads merchandise is still largely carried on pack animals, including sometimes camels, and proceeds along mere trails, although in the neighborhood of the capital, there are a few miles of metalled road. There is a French railway line of narrow gauge from the port of Jibuti in French Somaliland to Diré Dawa in the southeastern part of Abyssinia, a distance of 187 miles; and after January, 1909, there was a line projected to Addis Abeba. There is telegraphic communication from Addis Abeba to Harar and to Jibuti in French Somaliland and Massaua in Eritrea, the length being 1066 miles. There is also telephone communication between Addis Abeba and several other points. The coin of the country is the Maria Theresa dollar to which of late years has been added the Menelik dollar whose value is about fifty cents.

The nominal head of the state is the emperor or Negus, but the executive consists of a state council, comprising the chief notables, who are the governors of districts and provinces and the chiefs of villages. In 1918 the country was under the personal rule of the regent, but the authority of the state council was restored in August. The army consists of a standing force, and of a sort of militia comprising the retainers of the various chiefs, which is available in time of war. The standing force has been placed at somewhat less than 1,000,000 men, and the militia at about 2,000,000 men. The latter is ill-equipped and loosely organized. In 1921 the empress was Waiseru Zauditu, daughter of Menelik, born in 1876, who was crowned Feb. 11, 1917. The chief or ras Tafari was declared regent and heir to the throne. The government was recognized by Great Britain.

ACADEMY, FRENCH (ACADÉMIE FRANÇAISE). The oldest of the five academies which make up the Institute of France and officially considered the highest; founded in 1635; reorganized in 1816. The list of its members is known as the Forty Immortals. For the complete list aside from the change mentioned below, see the article in the preceding YEAR BOOK. The death of M. Jean Aicard, (q. v.) one of the members, occurred, May 13. The candidates for this vacant chair in the elections of December 15 were MM. Abel Hermant, Louis Madelin, de Porto-Riche, Camille Le Senne and du Plessys Flandres Noblesse. The seventh ballot resulted in thirteen votes for M. Hermant, seven for M. Madelin, and six for M. de Porto-Riche, and no decision having been reached, the session terminated. At the public annual meeting in December the permanent secretary, M. Frederic Masson, in his report on the competition of the year showed that there had been no lack of works of the first rank presented including historical works, poems, novels, and literary studies. The great success of the year was *Maria Chapdelaine* by Louis Hémon who recently died in the United States. The French clergy were well represented among the writers of the best works including the Abbé Lavaquér, who won the second Gobert prize for his *Cardinal de Bois-*

gelin; the Abbé Dedieu, who wrote the *Political Role of the French Protestants*. Others especially mentioned were *Louis XIV in Flanders* by M. Albert Croquez; *The Memoirs of Cardinal de Richelieu* by Maxime Deloche; *Madame de Maintenon* by Madame Saint-René Taillandier; and General Buat's work on Ludendorff. The list of the others is too long to be included. The work on the dictionary was continuing throughout the year.

ACADEMY OF ARTS AND LETTERS, AMERICAN. Founded in 1904 by seven members of the National Institute of Arts and Letters, and similar to the French Academy. It is limited in membership to fifty. Vacancies caused by death are filled by election by the Academy members from the National Institute on the basis of lifetime achievement in literature, painting, sculpture, architecture, and music. During the year three deaths occurred: Barrett Wendell (died February 8); John Burroughs (died March 29); and Abbott Henderson Thayer (died May 29). Three members were elected to occupy these chairs: Henry Bacon, Charles Dana Gibson, and Joseph Pennell.

The Academy received in 1921 the gift of a four-story building at 15 West 81st Street, New York. The facilities are such that it is intended to make the building a treasure house for valuable manuscripts and other memorabilia. Two gifts of \$200,000 in December, 1920, are being used for the purpose of erecting a building for the Academy on 155th Street between Riverside Drive and Broadway. The laying of the cornerstone of the building took place on November 19 at the annual meeting of the Academy. Marshal Foch performed the ceremony. Other gifts totaling \$21,000 were made during 1921.

On March 1 the Academy and the National Institute of Arts and Letters conducted a meeting in memory of William Dean Howells, who was President of the Academy since its inception until his death in 1920. Addresses were delivered on Howells as novelist, dramatist, humorist, and writer by Robert Grant, Augustus Thomas, Jesse Lynch Williams, and Brander Matthews. A memorial meeting was also held in honor of John Burroughs on November 18. The speakers were Henry Fairfield Osborn, Bliss Perry, John H. Finley, and Hamlin Garland. The Academy has enlarged its activities, its work being divided into three main departments: the Secretariate, the Library, and the Archives.

Membership in 1921 comprised the following: John Singer Sargent, Daniel Chester French, James Ford Rhodes, William Milligan Sloane, Robert Underwood Johnson, George Washington Cable, Henry van Dyke, William Crary Brownell, Basil Lanneau Gildersleeve, Woodrow Wilson, Arthur Twining Hadley, Henry Cabot Lodge, Edwin Howland Blashfield, Thomas Hastings, Brander Matthews, Thomas Nelson Page, Elihu Vedder, George Edward Woodberry, George Whitefield Chadwick, George de Forest Brush, William Rutherford Mead, Bliss Perry, Abbott Lawrence Lowell, Nicholas Murray Butler, Paul Wayland Bartlett, Owen Wister, Herbert Adams, Augustus Thomas, Timothy Cole, Cass Gilbert, William Roscoe Thayer, Robert Grant, Frederick MacMonnies, William Gillette, Paul Elmer More, Gari Melchers, Elihu Root, Brand Whitlock, Hamlin Garland. Those elected since 1918 are Paul Shorey, Charles Adams Platt, Maurice Francis Egan, Archer M. Huntington, Childe

Hassam, David Jayne Hill, Lorado Taft, Booth Tarkington, Henry Bacon, Charles Dana Gibson, and Joseph Pennell. The permanent secretary of the Academy is Robert Underwood Johnson, 15 West 81st Street, New York City.

ACADEMY OF SCIENCES, NATIONAL. See SCIENCES, NATIONAL ACADEMY OF.

ACCIDENTS. See AUTOMOBILES; BOILERS; RAILWAY ACCIDENTS; SAFETY AT SEA.

ADAMS, FREDERICK UPHAM. Author and inventor, died August 28. His inventions and writings in the field of mechanical engineering are well known. He was born in Boston, Mass., Dec. 10, 1859, and educated in the city schools. From 1882 to 1890 he practiced the profession of mechanical engineering, inventing during that period an electric lamp post which was generally adopted throughout the country (1886) and electric light towers (1887). From 1894 to 1897 he was chief smoke inspector in Chicago. In 1900 he constructed an experimental passenger train for the Baltimore and Ohio railway which broke all previous records for speed. Becoming interested in social questions he founded the magazine called the *New Time* which he edited from 1896 to 1898. He wrote among other books: *Atmosphere Resistance and Its Relation to the Speed of Railway Trains* (1893); *President John Smith* (1896); *The Kidnapped Millionaires* (1901); *John Burt* (1903); *How Cities are Governed in Great Britain* (1904); *The Oil War in Mexico* (1909); *The Conquest of the Tropics* (1913); *The Romance of Big Business* (1915); *Woodrow Wilson vs. Woodrow Wilson* (1919); *The Open Shop* (1919).

ADAMS, HENRY CARTER. Political economist and educator, died August 11. He was professor of political economy and finance in the University of Michigan, and the author of important works on taxation, finance, and railways. He was born at Davenport, Iowa, Dec. 31, 1851; graduated at Iowa College in 1874, and studied at Johns Hopkins and German universities. He was appointed to the faculty of the University of Michigan in 1880, and became professor of political economy and finance in 1887. Among positions held by him on government commissions, etc., were: Director of the division of transportation of the Eleventh Census; statistician and chief of the statistical division of the Interstate Commerce Commission; adviser to a Chinese commission in respect to standardizing railway accounts. He was assistant editor of the *International Journal of Ethics*, and wrote among other works: *Public Debts* (1887); *Relation of the State to Industrial Action* (1887); *The Science of Finance* (1898); *Statistics of Railways* (1888-1910); *Economics and Jurisprudence* (1897); *Description of Industry* (1918); *American Railway Accounting* (1918).

ADELPHI COLLEGE. A non-sectarian institution of the higher education, at Brooklyn, N. Y.; founded in 1896. In the summer school of 1921 the enrollment was 93 and for the year 1921-22 in the regular college it was 300. There were 22 members in the faculty. The library contained 17,500 volumes. President, Frank D. Blodgett, LL.D.

ADEN. A volcanic peninsula belonging to Great Britain on the Arabian coast about 100 miles east of Bab-el-Mandeb, forming part of the Presidency of Bombay; area, about 75 square miles; with the Protectorate, about 9000 square miles. The settlement includes the small penin-

sula of Aden known as Little Aden, some settlements on the mainland and also the island of Perim at the entrance to the Red Sea. The population of Aden and Perim in 1911 was 46,165 and the population of the Protectorate was about 100,000. The chief industries are the manufacture of salt and cigarettes. The trade is mainly transit. In 1919-20 the imports by sea were valued at £6,580,474; by land £295,498; total including treasure £7,124,078. The chief imports were cotton piece goods, grain, hides and skins, tobacco, coal, and provisions. The exports by sea in 1919-20 were £6,292,691; by land £125,451; total including treasure £6,517,004. The chief exports were coffee, gums, hides and skins, cotton goods, tobacco, and provisions. The shipping in 1919-20 included 1066 merchant vessels of 2,736,839 tons entered of which 642 were British. The government is under a political resident with four assistants. Political resident, 1921, Major-General T. E. Scott.

ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION FOR THE. An organization based on the principle that science can only be supported by the organization of scientific men in a democracy where no dependence can be had upon a leisure class; founded in 1848. Important work has been done in encouraging scientific research and promoting interest in its results. With the association are affiliated national societies which either meet regularly on their own account or during the annual convention week at the close of each year. Meetings have been held so far in Baltimore, Boston, Minneapolis, Washington, Cleveland, Atlanta, Philadelphia, Columbus, New York, Pittsburg, St. Louis, and Chicago. A Pacific Coast Division exists separately and holds its meetings independently in the summer. The official organ of the association is a journal, *Science*, published weekly. Membership is estimated at 15,000.

At the Toronto meeting of the association in 1921, held, December 27 to 31, by the invitation of the University of Toronto and the Royal Canadian Institute, the treasurer's report showed the total endowment funds of the association to amount to \$121,414.77 and the income for the fiscal year to be \$56,463.20. Among other measures, resolutions were adopted urging legislation requiring the use of the metric system in the United States, under government regulation. An address was delivered by Sir Adam Beck, chairman of the Hydro-Electric Commission of Ontario on "Hydro-Electric Developments in Ontario." He pointed out how these developments have been due to the electric and hydraulic engineers, and traced briefly the history of the hydro-electric enterprises of Ontario, showing how the commission is able to deliver electric power from Niagara Falls in Windsor (254 miles away) at a price only about one-third as great as that of steam-generated electricity in Detroit across the river. A series of moving pictures illustrated the various projects in Ontario. Under the social and economic sciences section a symposium was arranged on "An International Auxiliary Language." In this connection a paper was read by Dr. Frederick L. Hoffman, of the Prudential Life Insurance Co. of America, on "The Organization of Knowledge." The need for better methods in the classification of knowledge was emphasized, so

that what science has accomplished may become much more easily available. He presented an improved scheme of classification which has valuable possibilities in the fundamental field of scientific endeavor.

ADVENT CHRISTIANS. See ADVENTISTS.

ADVENTISTS. The largest branch of this denomination is the Seventh-Day Adventists. Figures for 1920 (latest available) show the following statistics for the North American Union: 2217 churches with membership of 95,877; 708 ordained ministers; 396 licensed ministers; 719 licensed missionaries, and other laborers bringing the total number of workers to 2694. The tithe receipts for the year amounted to \$3,918,515.14, or \$40.87 per capita. The total offerings to foreign missions was \$1,072,143.32; contributions for Home Mission Work, \$252,057.79. Sabbath schools numbered 2903, of total membership, 97,861. The 1308 church buildings were estimated to be valued at \$3,747,639.85. The church schools were 716 in number with total enrollment of 17,510; young people's societies numbered 1278 and had a total membership of 25,988. Contributions for young people's work totaled \$154,070.92. Six publishing houses were maintained and denominational literature was published in 99 different languages. There were 3155 publications issued during the year. Evangelistic work was conducted in 108 countries. Educational institutions in North America and elsewhere number 97, 16 of those in the former carrying full college courses. Loma Linda College, Pacific Union College, and Walla Walla College are the most famous.

Other branches of the Adventists are the Adventists Christian Church, which in 1916 (later figures not available) had 30,316 members, 640 churches, and 626 ministers; the Adventists Church of God, which in 1920 had 10,000 members, 100 churches, and 80 ministers. Exact statistics for 1921 are not available, but it is reported the denomination had the most prosperous year of its existence in the way of spiritual growth. Receipts in endowments, offerings, and gifts as well as membership more than doubled those of the previous year. During the year a new paper was launched, known as *The Field Messenger* and published monthly at Stanberry, Mo. Other branches of the Adventists are Life and Advent Union, which in 1920 had 700 members, 20 churches, and 15 ministers; and the Church of God and Jesus Christ, with about 4000 members, 90 churches, and 50 ministers.

AERONAUTICS. Notwithstanding the uncertain political and economic conditions prevailing in 1921, it may be said that during the year there was a distinct advance in many fields of aeronautics, though hardly to the extent that the more enthusiastic desired, and thought would come with greater government support and encouragement. The application of the airplane and the dirigible had lagged behind the development of these machines, except for military purposes, and with the curtailment of military needs and expenditures and the tendency toward reduced armaments, there was naturally less activity in army and navy air offices, though much important work was done. The development of the aerial post continued and air mail routes were extended and developed, though in some cases, as in the United States, there was involved a read-

justment of services. Here again both in America and Europe the demands of an enforced economy restricted developments, but there were distinct advances made, and many routes reported efficient and economical as well as regular and reliable air service. Certain government activities previously inaugurated, such as the Forest Fire Patrol by army aviators in the western part of United States, and various reconnaissance and other survey and mapping projects in the United States and Canada, were continued and extended. This mapping and survey work was being adjusted on a permanent and systematic basis for hydrographic, reclamation, development, planning, location, and other surveys, and already was quite beyond the experimental stage.

In commercial aviation, that is regular passenger and express service, progress was comparatively slow, though somewhat more marked in Europe than in America as regards the number of regular lines operated and projected but not in the actual number or mileage of flights. Safety and regularity of operation were generally secured and operating costs were being reduced. Probably with less stringent financial conditions more capital for development and organization would have been available, and it was the universal opinion that for some years civil and commercial aviation must be encouraged by government sympathy, interest and coöperation. However, there was an increase of air traffic on important routes such as across the Channel and between several continental cities.

On the technical and scientific side the advances though not spectacular were important. In all fields careful computation, design, and research were in progress, for airplane engineering long since had progressed beyond rule of thumb methods. In no field of mechanical engineering was there better and sounder design and precision of construction than in the development of planes and engines and the extraordinary long distance and duration, not to mention high speed records, flights, were eloquent testimony in this direction.

Obviously the military and naval side of aeronautics cannot be dismissed as summarily as above, and the reader is referred to the articles on MILITARY and NAVAL PROGRESS for this side of the discussion, but it is pertinent to call attention to such work as the destruction of obsolete or surrendered vessels of war and the dropping of heavy weights of high explosive bombs, weighing in one case as much as 4300 lbs. from airplanes and dirigibles, not to mention ease of penetrating the interior of a country, which matters figured to an important degree in the discussion of the Disarmament Conference (q. v.) at Washington in November and December, 1921. In this connection, an event fraught with great possibility as extending the range and usefulness of the swift airplane carrier or the battleship was when the U. S. Navy launched a seaplane from its first catapult at League Island Navy Yard, Philadelphia, preparatory to equipping surface craft with fighting and scout planes.

Returning to commercial and civilian flying in the United States, a review compiled by the Aeronautical Chamber of Commerce for the U. S. Department of Commerce stated that this had increased in 1921 20 per cent over the previous year. In 1921 twelve hundred aircraft were being operated by civilians with a flying record amount-

ing to more than 6,500,000 miles and carrying approximately 275,000 passengers. These figures were based on authenticated reports to the Aeronautical Chamber of Commerce from all sections of the country, and demonstrated that America was maintaining a place in the air as far as individual effort and accomplishment were concerned.

Late in the year the so-called Wadsworth-Hicks Bill providing for a Bureau of Civil Aviation in the Department of Commerce to regulate and develop navigation of the air, came before the Congress of the United States. This proposed bureau, among other duties, was to have supervision over the licensing and registration of all commercial aircraft and pilots and the enforcement of the laws. This measure sought to embody the recommendations of President Harding contained in his special message on the subject of aviation, sent to Congress soon after the opening of the session in December, 1921, when he transmitted the annual report of the National Advisory Committee for Aeronautics.

The bill as introduced was perfected and agreed upon by all agencies directly concerned with aeronautics. There was provided the appointment by the President of a Commissioner of Civil Aviation, to prepare rules and regulations for air navigation, including the issuance of licenses for aircraft, aviators, and air stations, who was authorized to designate and lay out air routes and to study the possibilities for the development of civil aviation in all parts of the United States.

The bill in the form as introduced was the result of conferences between the representatives of the Aero Club of America, the aircraft industry, and heads of the Army and Navy Air Services, the Weather Bureau, and the National Advisory Committee for Aeronautics. It dealt in considerable detail with the various phases of the air problem and sought to supply much needed legislation and harmony in this field.

As typical of the increased attention paid to practical aviation, mention may be made of the first American National Airway which was opened by the Army Air Service between Bolling Field, Washington, D. C., and Dayton, Ohio. In an attempt to popularize flying as well as to dispose of surplus stock during the year the U. S. Navy Department released four million dollars worth of flying boat equipment for the civilian market at greatly reduced figures.

NEW AIRPLANES. In 1921 there was successfully put in service the Larsen all-metal armored monoplane carrying machine guns, an American type, which later in the year, as related below, was able to secure the World's Endurance record. Two other important developments were the torpedo-carrying plane and the Navy Scout. Another important American development of great mechanical advantage was the geared propeller and multiple drive system tested successfully by the Gallaudet Aircraft Corporation at East Greenwich, R. I. It permitted the harnessing of three motors to one propeller and gave greater power, flexibility, and safety. A number of different types of small sport machines were produced in the United States in 1921. The Sperry "Messenger" with Lawrence motor, the sport Farman, the Thomas-Morse racing monoplane, the Laird Swallow, the Longren folded wing sport plane, and others were introduced during the year in the United States.

In Europe, as shown at the various aviation shows and in flight, there were also a number of developments during the year, but mostly in the direction of refinement and increased efficiency. New planes were developed and older ones improved as in the case of the Nieuport monoplane, whose record of speed has figured many times in this annual review. In 1921 the latest model (Nieuport-Delage) made a notable record, being flown at 206 miles per hour with a 300 h. p. Hispano-Suiza motor. By some engineers this new model was considered a biplane, although the lower plane, only one metre square and placed between the two landing wheels was so small as to be quite insignificant. In the upper plane there was a span of 8 metres and a breadth of 1 metre and 50 centimetres, while the fuselage measured 6 metres, 50 centimetres. The whole machine ready for flight weighed 950 kilogrammes (2094 lbs.).

In England a new type of monoplane brought out during the year was originally called the "Handalula," and represented a radical departure from current practice, the wing being shaped like that of a bird. This machine, when flown by Commander Kenworthy at Northolt Airdrome attained a speed of 187 miles an hour and reached a height of 3000 feet on almost its first flight. This performance was early made with only a 300 horsepower Hispano-Suiza engine, but a larger machine of modified design was built to be engine by a 1000 horsepower Napier "Cub," motor, and a much greater rate of speed was expected. The wing of this monoplane was designed specially for high lift by a Mr. Holle, who had been studying bird flight and the subject of high lift wings. The new plane became known as the "Alula," and inasmuch as it was typical of the later monoplanes with a large and powerful engine mounted in the fuselage below the wings it was of interest to determine just how much advantage would be secured with improved wing design.

AIRPLANE ENGINES. In the 18 years elapsing from the flight of the first airplane at Kittyhawk, N. C., in December, 1903, no feature stood out more strongly than the development of the airplane engine. Just as artificial flight largely was made possible by the small internal combustion engine, so its development had depended in no less measure on the improvement of the engine as suggested in the table below. The original engine of the Wright Brothers gave only 12 horsepower with a weight of 12.7 pounds per horsepower. This efficiency was so increased that the Liberty motor, used in 1918 and in a measure typical of modern engines up to 1921, stands out conspicuously in the table below.

The figures, except for the first and last columns (Wright and Liberty motors) are average values of principal engines for each year:

Year.....	1903	1910	1914	1915	1916	1917	1918
Horsepower.....	21	54	112	133	185	243	450
Weight, lbs.....	152	309	437	512	570	693	825
Lbs. per h. p.....	12.7	5.7	3.9	3.8	3.1	2.8	1.8

But no less striking were the reliability and endurance records of these high speed machines as shown in the extraordinary mileage the airplanes they drove were able to make. For example of the airplanes in daily flight between London and Paris, among the most successful machines the DH-18's which, equipped with a single 450

h.p. Napier aëro engine, had a passenger carrying capacity of eight and a total loading capacity of 18,000 lbs. It was the practice to run these Napier engines the remarkable distance of 10,000 miles before they were taken down for careful inspection, which was done solely by way of precaution. After examination these engines were reassembled for immediate service. Some of the Napier engines on the London to Paris aëro mail had actually covered a distance of 25,000 miles up to the end of 1921 and were in regular and daily service on the cross channel journey.

During the year in the United States many improvements were made and tested not only in airplane design and construction but in the internal combustion engine. Motors were made more reliable, more economical as far as fuel consumption was concerned, and more efficient. New types of motors were developed and were constructed, including the Wright, Lawrence, Packard, etc., radial, air-cooled, and steam. One of the important developments of the year was an internal combustion engine of 700 horsepower which was under test at McCook Field, Dayton, Ohio, and promised to be one of the most powerful in the world.

NOTABLE AMERICAN PERFORMANCES. The year 1921 was replete with notable and spectacular performances by American aviators and airplanes. These were noteworthy as marking distinct practical advances in the art of aviation which would soon become or indicate standard practice rather than as mere sensational or isolated feats of men or machines. Such for example was the transcontinental flight of Lt. W. D. Coney from San Diego, Cal., to Jacksonville, Fla., 2180 miles in 22 hours and 27 minutes. The flight of the aëromarine "President Zayas" from New York to Havana in 19 hours flying time, the 4842 mile flight of the two U. S. Marine Corps planes in charge of Lt. Col. T. C. Turner, from Quantico, Va., to Santo Domingo and return, the 3200 mile flight of the twelve Navy seaplanes from San Diego, Calif., to Panama were also notable achievements. On the purely military side, though showing excellent functioning and operation on the part of machines and pilot were the repeated performances in connection with manoeuvres of the Army, Navy, and Marine Corps planes which flew 100 miles out at sea and dropped tons of explosives on the surrendered German craft in the course of the aërial warfare demonstrations off the Virginia Capes in June and July, which proved conclusively the effectiveness of airplanes in coast defense against surface vessels. See **MILITARY PROGRESS AND NAVAL PROGRESS.**

LONG DISTANCE FLIGHT OF "SANTA MARIA." An important and interesting long distance passenger flight was made during the year by the American eleven-passenger flying cruiser "Santa Maria" of the Aëromarine Airways Co., which landed at New Orleans after a complete tour of the eastern section of the United States. The "Santa Maria" in 1921 was the largest passenger flying boat in the world, and had covered 18,000 miles in the air, and transported more than 2000 passengers in absolute safety. During this trip she was in the air a total of 270 hours, which was conceded to be an unprecedented feat for an airplane.

This notable flight was started at Key West when the Aëromarine Airways, with the co-

operation of the United States Navy Department, planned to fly the "Santa Maria" up the Atlantic coast to Washington and New York, and thence across New York State over rivers, lakes, and canals to Montreal, and along the Great Lakes via Toronto and Detroit to Chicago. From the latter city the "Santa Maria" went to New Orleans along the valleys of the Illinois and Mississippi rivers, stopping at St. Louis and Memphis.

This trip was not so remarkable for its total distance, as probably not more than 5500 miles was accomplished in a bee line, but the "Santa Maria" made a large number of passenger flights at each of the cities she visited. She carried among her through passengers a representative of the U. S. Navy throughout, Admiral C. J. Peoples, and then Commander P. N. L. Bellinger of the famous NC-1. Both were specially assigned by the Navy Department. During 1921 the fleet of fifteen flying boats of the Aëromarine Airways alone flew 100,000 miles and carried 6814 passengers, 29,002 pounds of freight and mail between Key West and Havana and at various posts along the Atlantic coast.

PHOTOGRAPHIC SURVEYING AND MAPPING. Photographic surveys from airplane and dirigible by 1921 had become as commonplace as they were useful and many of the military advantages developed during the war were found applicable to civil and other engineering and exploration. On the coasts of the U. S., Army, Navy, and Marine Corps aviators made many important aërial surveys, such as those of the Olympic Peninsula in Washington, the Mississippi River Delta and the coastline of several islands in the West Indies. Navy aviators prepared a photographic map of the mouth of the Mississippi for the U. S. Coast and Geodetic Survey, while a map of Guantánamo Bay was also made for the U. S. Hydrographic office.

In Canada the Reclamation Service made an airplane survey of a proposed drainage project in the region of the Carrot River, on the boundary between Northern Manitoba and Saskatchewan. The reclamation of 800,000 to 900,000 acres of land was involved in this large project, and a reconnaissance or rough topographical survey would have been difficult as much of the area was inaccessible on account of floods. Much valuable data was thus secured in short time so that if a ground survey later with instruments was required it could be done readily.

An interesting and useful discussion of aërial photographic mapping was published in *Engineering News-Record* (New York) for Oct. 13, 1921, p. 596, in which aërial photographic mapping for municipal and other engineering services was treated.

GOVERNMENT USES OF AIRPLANES. The previous successful use of airplanes to detect and prevent forest fires in the western United States was continued during 1921 and the forty-one army airplanes operated on the Aërial Forest Patrol in the National Forests on the Pacific Slope made 396 patrols during the season. They discovered 832 fires and provided protection to 7,230,459 square miles of valuable timber lands. In Canada the new Dayton Wright forest patrol seaplanes were placed in service during the summer. U. S. Marine Corps planes were used in revenue service and located many illicit stills on the eastern coast. On one occasion, on September 2, an entire moonshine village was thus detected.

The Bureau of Aeronautics was organized by the Navy Department thereby coordinating the various divisions of Naval aviation. The airplane rendered invaluable aid in flood, fire, and pestilence, one of the most notable occasions being the Pueblo, Colo., flood in June, and at the time of the threatened railway strikes, manufacturers and owners of aircraft proposed the organization of a supply and mail service for the different cities.

DIRIGIBLES

Notwithstanding the sad tragedy connected with the destruction of the huge airship intended for the U. S. Navy during a trial flight, there was considerable activity to be recorded in the development and use of dirigibles, particularly by the U. S. Navy and also in the proposed airships to be used in Europe for long distance transportation.

ZR-2 DISASTER. The most tragic disaster in the year's record in aeronautics was the collapse of the British designed and built dirigible R-38, constructed for the United States Navy and known on its records as ZR-2. This catastrophe occurred above Hull, England, on August 24, 1921, while the huge dirigible was on a trial trip under the command of a British officer, Lieut. A. A. Wann, and with a British crew of 49 officers and men. There were in addition six officers and eleven non-commissioned officers of the U. S. Navy aboard the craft, though it had not been turned over to the American government. The ZR-2, which had had a number of trial trips beginning as early as June 23, 1921, on this particular occasion had departed from her moorings at Howden on August 23, and had been cruising for some 30 hours in the North Sea and off shore. During this time she was in communication with her base by wireless and no mishaps or lack of control were reported. The trip was about concluded and the airship flying over the city of Hull at a height of about 1200 feet and ready to descend to her shed, when about 7.30 p. m. the huge gas envelope was seen to collapse and break in two while there was a severe explosion of the oil tanks which wrecked the steel frame and scattered fragments broadcast. The wrecked airship, which by design had been steered toward the Humber, fell into the river carrying with it those of the crew who had been unable to escape by leaping through the traps of the main car equipped with safety parachutes. The airship fell in the shallows of the river where it could not be reached on account of the smoke and flames so that all who did not escape perished. The tide rising rapidly soon submerged the wreck and but little remained of the world's greatest airship. The bodies of the victims were rescued later and the wreck of the dirigible was carefully studied. Those lost in the disaster totalled sixty-two of whom two subsequently died of injuries in the hospital.

In the YEAR BOOK for 1920, page 8, were given the dimensions and other data of this great dreadnaught of the skies, which was not only the largest but the most formidable aircraft in existence. She was designed for a flight of 5000 miles at full speed of 70 miles per hour, or for 6500 miles at a speed of 60 miles. The 690 feet of length practically rivalled the height of the Woolworth Tower in New York City and the

2,700,000 cubic feet of hydrogen gas would have lifted 83 tons of dead weight. The six Sunbeam-Cossack engines of 2000 horsepower were fully capable of producing the desired speed. The armament was also of interest in that it comprised fourteen Lewis machine guns and a one-pounder automatic in addition to four bombs weighing 520 pounds each and eight bombs weighing 230 pounds each. Every effort was made to eliminate such weaknesses of the German Zeppelins as had been revealed in the war and a complete system of operating and fire control was developed. Sleeping quarters were provided for thirty officers and men, while the heating of food was accomplished by using the exhaust gases in a special arrangement. Comparison of the ZR-2 with the R-34 which made the trip from England to America and back in 1919 was inevitable. The R-34 crossed in 108 hours and 12 minutes in July, 1919, but it was necessary to watch carefully the fuel supply. The ZR-2 could carry 2900 more gallons of gasoline and was capable of from ten to twenty-five miles an hour greater speed as she had six engines of 350 horsepower each as compared with five of 250 horsepower for the older airship. The American crew which had been trained on the dirigible was ready to take over the craft and an early departure was planned, a course having been plotted from Howden westward over Ireland and direct by a great circle to Newfoundland whence it was proposed to cross New England and proceed to Lakehurst, N. J., where a huge hangar costing some \$2,000,000 was in readiness to receive and house the ship. The ZR-2 had been put through a rigid series of trial trips and on one of the first of these, a "hump" was developed due to the bending under strain of the supporting girders and lattice work, which served as the foundation for the envelope and held the understructure to it. This led to a strengthening of the girders and rods, so that it was believed that the tendency to buckle had disappeared. The British constructors were not, however, entirely convinced and urged further and severe trial trips before the airship was turned over to the Americans. It was also suggested that the arranged day of departure should be postponed until further trials had been made.

Lieut. Wann, the commander, was the only one of those in the forepart of the balloon where the explosions occurred who escaped with his life, though he was severely injured. The other survivors were all in the stern. Lieut. Wann attributed the disaster to a weak structural part of the ship which broke in two pieces.

As was quite natural this tragedy was the subject of official investigation in England. A coroner's jury on October 4, turned in a verdict of accidental death, stating that nobody was to blame and finding no evidence regarding the actual cause of the dirigible's destruction. On the other hand, the Air Ministry's Board of Inquiry in a report published on October 7, blamed the disaster on a lack of proper coöperation and supervision when the designs of the dirigible were first prepared and the later failure to submit the changes in design to closer scrutiny. According to the report the airship in the course of the tests was made to turn sharply at a speed of from 45 to 50 knots and such a manoeuvre caused the breakdown between the ninth and tenth frames. The fire was produced by broken elec-

trical conductors in contact with broken gasoline feed pipes which spread throughout the keel. There was no fire in the after part of the ship from which four of the fire survivors escaped.

"That the requirements as to the maximum height and speed, together with the limits of length imposed by the only available construction sheds, necessitated the utmost economy at Hull in the matter of weights and materials. Many new features were introduced in the design, and it appears evident that in some cases there was a lack of vital aerodynamical information as to the effects of these modifications on the strength of the structure.

"That having regard for the great differences in requirements between His Majesty's airship R-38 (the British name for the ZR-2) and previous British airships, the design should have been examined and discussed by an official and competent committee before actual construction was commenced

"That, although there can be no doubt that efforts were made toward the end to complete the ship in the shortest possible time, there is no evidence that the work on the hull or structure suffered."

CONSTRUCTION OF ZR-1. In addition to the European airships ordered or under test by the United States Navy there was under construction during the year the ZR-1, which was the American Navy's first attempt to develop a huge airship of the rigid type along the lines of the German Zeppelin L-49, which was captured intact during the war in France. This German craft, built after some 140 airships had been employed in actual service, was considered to represent the best construction of the Zeppelin engineers and works and was regarded as a safe and reliable craft. On this design as a basis the American engineers were proceeding with the idea of making improvements suggested by experience rather than radical innovations. The construction was hampered by reduced appropriation, but the duralumin for the girders of the ship's framework had been delivered to the Philadelphia aircraft plant of the Navy where it was being fabricated into the lattice work frame members. The contract was let for the eighteen gas bags, while arrangements were being made to lay the keel in the new hangar which had been built at Lakehurst, N. J., and completed during the year to house both the ZR-1 and ZR-2. Here the frame members which had been cut and assembled for fitting at Philadelphia were to be transported and then reassembled and placed in the ship. The ZR-1 had a length of 645 feet and a diameter of 78 feet, both the German standard dimensions, and was to be equipped with six Liberty engines, each of 400 horsepower and in a separate car as against the original plan of five engines. These engines in service were to be reduced to 320 horsepower each with a promised increased economy and reliability of operation. The ZR-1, whose gas bags were designed for either hydrogen or helium, was to have a gas capacity of 2,000,000 cubic feet or some 700,000 cubic feet less than the ZR-2, while her lift was planned to be about twenty-seven tons less than that airship and be about equivalent to the fifty-six ton pull of the British R-34 which made the transatlantic trip. The speed was also planned to exceed the 60 mile maximum of German airships.

U. S. AIRSHIP "ROMA." In the autumn of 1921 the large semi-rigid dirigible "Roma," purchased by the United States government from Italy, arrived in good condition and was assembled at Langley Field. It was found that the envelope which contains the gas was in exceptionally fine shape, and no difficulties were encountered in its inflation, or in assembling the keel and the six power units, so that by November the airship was ready for trial.

The "Roma" was said to possess a range of action of approximately 3500 miles at 80 miles per hour, while at cruising speed, a distance of 8000 miles was estimated. Its capacity was 1,200,000 cubic feet, length 410 feet, width 82 feet, height 88.6 feet, and useful load in the neighborhood of 19 tons. It was equipped with six 12-cylinder, 400 h. p. Ansaldo motors but later it was proposed to substitute Liberty motors of corresponding horsepower for them when they would require replacement.

It was proposed by the Army Air Service to use this ship, which under favorable conditions was capable of making a non-stop flight from the Atlantic to the Pacific coast, for such work as long-distance reconnaissance flights, photographic surveys, coast patrol work, and the carrying of supplies for heavier-than-air units.

U. S. AIRSHIP No. A S 1504. The first test flight of the Army Airship No. A S 1504, a Goodyear pony blimp of the A type, was made at the Goodyear Akron Air Station September 12, by Flight Officer Lieut. G. W. McEntire. This airship had a capacity of 35,000 cubic feet of gas and was 95.5 feet long, with a maximum diameter of 28 feet. The car accommodated two or three passengers and was equipped with a Lawrence three-cylinder 50 horsepower motor, giving a cruising radius of 450 miles.

This ship was flown to Dayton, Ohio, on September 19, to be used by the Engineering Section of the Balloon and Airship Division of the U. S. Air Service for experimental purposes.

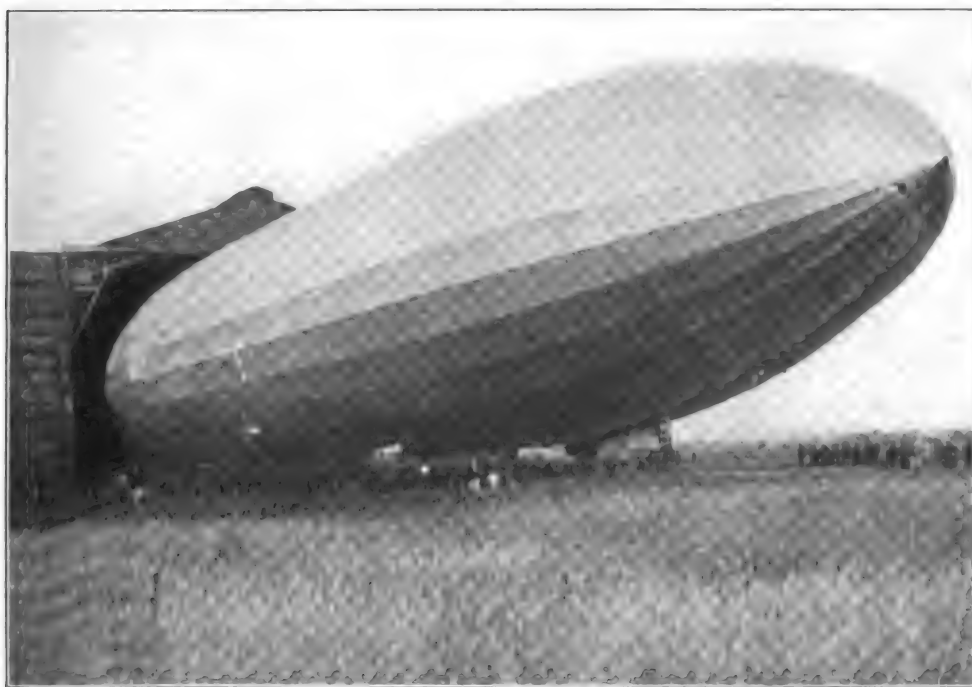
A GERMAN ZEPPELIN FOR THE UNITED STATES. Towards the close of 1921 it was reported that the Allied Council of Ambassadors in Europe had agreed to permit a modification of the protocol signed in June whereby Germany was limited as to the size of airships it might build. In place of the 30,000 cubic metres maximum capacity thus permitted Germany was to be allowed to build for the United States an airship of the L-90 type at the Friedrichshafen hangar after the completion of which the hangar, the largest in Germany, was to be taken down and the machinery and personnel dispersed. This was considered both in the way of a diplomatic triumph for the United States and as an evidence that the American authorities were convinced of the usefulness of these huge aircraft. It was also stated that this new airship would be built without cost to the United States as the expense would be figured in the war settlement.

Assuming that this proposed Zeppelin would reproduce the German L-70 class there would be involved an airship measuring 743 feet in length, or 48 feet longer than the ill-fated British ZR-2, described above, but having the standard German diameter of 78.4 feet. These Zeppelins were capable of sustaining a total useful load of more than 88,000 pounds, equivalent to 59 per cent of the total weight of the ships. Each carried a crew of thirty men. Seven Maybach engines of 290



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ROMA, BUILT IN ITALY AND PURCHASED FOR THE UNITED STATES GOVERNMENT



© Brown Bros.

BRITISH Z R-2, DESTROYED BY ACCIDENT
TWO GIANT DIRIGIBLES

horsepower each were installed in six power cars suspended below the gas bag of the ship, two being placed in the after car, thus giving a total horsepower of 2030, and developing a speed of over 80 miles an hour. It was decided that the construction of the new Zeppelin should be under the direction of technical officers of the U. S. Navy, and when finished it would be taken over and navigated to America by an American Naval crew. In this connection towards the end of the year it was reported that engineers of the Zeppelin Airship Building Co. were in the United States discussing plans for a possible transatlantic fleet of passenger and mail airships to operate between Germany and America.

HELIUM USED IN AN AIRSHIP. The first successful use of helium as a substitute for hydrogen gas occurred on Dec. 1, 1921, when the U. S. Navy non-rigid airship C-7 was successfully inflated and made two successful trips from the naval air station at Hampton Roads, Va., which were repeated on the following day and subsequently. This large blimp, which had a capacity of 181,000 cubic feet, was filled with gas made at the U. S. Government plant at Fort Worth, Texas. This installation was developed during the war when it was found that by a special process helium could be obtained in commercial quantities from the oil from certain wells in the Texas and Oklahoma fields. In this large plant built during the war for the joint use of the Army and Navy at heavy cost, by means of a complicated refrigerating equipment the helium could be separated from the other gases and made available for lighter than air flying machines. It has the distinct advantage of being non-inflammable and will not explode, but it has 92 per cent of the lifting power of hydrogen. Furthermore it is but 62 per cent as diffusive as hydrogen, which notwithstanding the airtight material of the envelopes often seeps through and goes to waste. Helium also does not deteriorate as rapidly as hydrogen which becomes impure when long kept in a dirigible, as it does not absorb the impurities as readily. In addition to the installation at Fort Worth there was under construction at Langley Field a plant for the production of the gas in usable form for the airships, while another helium producing plant was proposed for location on the Pacific coast. Later in the year the C-7 made a trip to Washington and other flights.

A NEW ITALIAN DIRIGIBLE. The success of the giant semi-rigid airship "Roma" sold by Italy to the United States Government, led the Italian air authorities to build another on much the same design, only larger and better, profiting by experience. It was to be known as the "Napoli" and probably was to be the second of a large fleet of huge aircraft.

The "Napoli" was to be of the semi-rigid type, much the same in shape as the sister airship though more elongated and of 54,000 cubic metres capacity instead of 34,000.

The power plant was to include twelve Spa motors of 300 horsepower each, Italian designed and constructed, and set tandem in the steel ribs so that they could be repaired and even changed, if needful, during flight.

The "Napoli" was designed to carry a hundred passengers. With only four engines working its speed was expected to be forty-three miles an hour.

SPAIN-ARGENTINA AIRSHIP SERVICE. The most notable airship project discussed during the year was an air company affiliated with the Compania Transatlantica Shipping organization to operate passenger and mail Zeppelins between Cadiz and Buenos Aires, making the trip between the two cities in ninety hours. Application for a subsidy was to be made to the Spanish parliament.

The enterprise was Spanish in its inception and development with Major Herrera representing the government, but the organization and management was to be German with Dr. Hugo Eckner formerly with Count Zeppelin as chief of the technical staff.

Dr. Eckner stated that war experiences with the German Zeppelins were sufficient to enable his company to guarantee the smooth operation of airships of 45,000 cubic metres in size at a rate of speed of seventy-two miles an hour while carrying between thirty and forty passengers and 300,000 letters.

The idea of the Cadiz-Buenos Aires service to establish a quick and direct connection with the trans-Atlantic nations originated in Spain and negotiations with the Zeppelin management led to the organization of a commission, which subscribed 50,000,000 pesetas (about \$10,000,000) of the necessary 80,000,000 pesetas (about \$16,000,000), the Spanish Government guaranteeing the interest on this sum.

Major Herrera together with two other Spanish air experts, and two Germans, including Dr. Eckner made a trip to Argentina in order to choose sites for hangars, study the conditions, and obtain financial interest and support from the Argentine Government. They reported that it would be necessary to use larger airships than any previously built (with the exception of R-38), and that the weather on the European side was favorable for anchoring but that on the American side it would be necessary to have a revolving shed. Excellent wind and weather conditions greatly favored the route proposed, which was 6000 miles long, and the airships would be able to escape tempests.

The return journey from Buenos Aires to Cadiz would require a hundred hours instead of ninety, owing to the northeast winds that would be met.

It was proposed that the airship service should be started with three airships, which would cost 36,000,000 pesetas (about \$7,200,000), and hangars, gas factories and wireless installations, costing 40,000,000 pesetas (about \$8,000,000), while unforeseen expenses were estimated at 4,000,000 pesetas (about \$800,000).

The cost of each trip was estimated at about 42,000 pesetas (about \$8400), and it was anticipated that the receipts would be about 900,000 pesetas (about \$180,000) based on carrying sixty passengers at 5000 pesetas (about \$1000) each, and 300,000 letters at a special mail rate of 2 pesetas (about 40 cents) each.

FRENCH DIRIGIBLES

The aeronautical station at Orly in the suburbs of Paris was selected to be the principal French airship base; and, during the year 1921, the buildings and plant required for construction were in an advanced stage. They included big gas-holders, airship sheds, and workshops, and a Customs house. Mooring masts for airships were embraced also in the French programme. Under

the war settlement, seven German airship sheds were allocated to France, and the French Council of National Defense was seeking to persuade the Government to agree to the Air Department's airship programme, and reerect these sheds at Marseilles, Paris, Tunis, Casablanca, Algiers, and Dakar (Senegal).

It was realized that France could not neglect the prospect of German airship construction and operation being maintained.

AIR COMPETITIONS

AMERICAN FLYING MEETS. During 1921 a number of well attended flying meets and competitions were held in the United States. Among the more important were the races, and demonstrations on Long Island, in Florida, Hartford, Conn., Baltimore, Chicago, Kokomo, Ind., Dallas, Denver, Oakland, and Long Beach, Calif., several in Iowa and Nebraska, and one of the most important, the American Legion Flying Meet at the National Convention in Kansas City, Mo., October 31-November 2.

PULITZER TROPHY RACE. The Pulitzer Trophy Contest for 1921 was held on November 3, at Omaha, Neb., over a triangular course of 30.7191 miles with five laps, or a total distance of 153.595 miles. It was won by Bertrand Acosta in a Curtiss Navy biplane with Curtiss CD-12 400 horsepower motor in 52 minutes and 8.4 seconds, or an average speed of 176.75 miles per hour, thus breaking the previous record of 173.1 miles per hour over a 186 mile course made by Lieutenant Georges Kirsch in a Nieuport-De Lage plane at the Deutsch de la Meurthe competition at Etampes, France, on September 30. The result of the Pulitzer Contest for 1921 was noteworthy in that the successful contestant was an American who flew an American plane equipped with American engines. Second place was also taken by an American plane, as Clarence Coombs in the Curtiss-Cox Triplane accomplished the course in 54 minutes 6.2 seconds, or an average speed of 170.34 miles. Third place was taken by J. A. MacReady in a Thomas Morse MB-6 biplane with a Wright H-2 motor in 57 minutes and 20.4 seconds; and fourth place by Lloyd Bertaud in an Italian Balilla scout biplane with a Curtiss C-12 motor in 61 minutes 31.4 seconds. James Curran in a S. V. A. biplane went two laps and was forced down by engine trouble, while Colonel H. E. Hartney, whose feed pump failed to work, was injured in a forced landing on the first lap. The 1922 competition was arranged for Detroit, where the 1921 contest was to have taken place, but was abandoned in favor of Omaha as greater support seemed possible in the latter city.

LARSEN TROPHY COMPETITION. This interesting airplane race on November 5 was held also at Omaha, over a triangular course of 8 laps each of 30.7191 miles or a total of 245.753 miles. This was won by E. F. White in a S. V. A. plane which negotiated the distance 154 minutes and 56 seconds, or an average speed of 95.17 miles per hour, though the decision of the Contest Committee was appealed. In this competition the efficiency of the various machines was determined on the basis of the following formula:

$$E = \frac{(W - T)S}{G}$$

Where

E = Factor of Efficiency.
W = Total Load Leaving Ground — Lbs.
T = Light Weight of Plane + Water — Lbs.
W — T = Total Useful Load — Lbs.
S = Average Speed, M P H Actually Made.
G = Gallons of Fuel Actually Used.

WORLD'S ENDURANCE AIRPLANE RECORD. For the first time since the record for time of flight by an airplane was made by Wilbur Wright in the early days of aviation (18 seconds in December, 1903, was the first duration of flight for a heavier than air machine) the World's Endurance record was made by an American machine with an American pilot and passenger. On Dec. 30, 1921, Edward Stinson and Lloyd Bertaud were in continuous flight for 26 hours 19 minutes and 35 seconds above Roosevelt Field near Mineola, Long Island, N. Y. This supplanted the previous record of 24 hours 19 minutes and 7 seconds made June 4, 1920, by Lieuts. Lucien Boussoutrol and Jean Bernard at Ville Sauvage la Dordogne flying a Farman Goliath airplane. The American record was made in a JL-6 airplane designed and built in the United States by John M. Larsen; an old metal plane developed from German designs, but with important and extensive modifications and improvements.

The average speed during this flight was estimated at about 85 miles an hour so that the actual distance flown was in the neighborhood of some 2500 miles which is also a record distance for a non-stop flight though of course the course followed was circular with the landmarks and especially lights below to guide the pilot. This distance may be compared with the Transatlantic flight of Alcock and Brown from St. Johns, Newfoundland, to Clifden, Ireland, of 1936 miles made June 14-15, 1919. The 185 horsepower B. M. E. engine, which was of German design though of American construction, functioned perfectly during the flight and was capable of further effort but defects developed in the lubrication system including a faulty connection so that certain parts had to be lubricated by pouring the oil by hand. The plane was built of duralumin throughout and had a wing span of 50 feet and a length over all of 81 feet by 11 feet in height. Ordinarily its cabin accommodated six passengers, but on this occasion the space was filled with extra fuel and lubricant. The Larsen airplane was one of several that had been constructed and used during the year in long distance flying and the achievement of a world's record came as the well merited result of careful design, construction, and experiment with this type of plane.

AMERICAN SPEED RECORD BROKEN. The American speed record for airplanes made under international standard and official conditions and supervision was broken by Bert Acosta, piloting a Curtiss navy racer, at Mineola, November 22. In this flight an officially timed average speed of 184.8 miles an hour was made and the maximum attained, as checked by electric timing apparatus, was 197.8 miles an hour.

This flight was also noteworthy as the first to be made in the United States since the war under the rules of the Federation Internationale Aéronautique. These rules, which were duly carried out, provided for eight flights over a measured course of one kilometre, four with the wind, and four against.

This American record took the place of that established in the autumn of 1920 by Captain C. C. Moseley in the U. S. Army Air Service Verville-Packard biplane. For this flight, however, the F. A. I. rules were not applied but there was returned an official record of 186 miles an hour. Under the same system Acosta's time on November 22 would have been 197.8 miles an hour.

ALTITUDE RECORD. A record height of 40,800 feet officially corrected to more than 37,800 feet was attained on September 28, at McCook Field, Dayton, Ohio, by Lieut. John A. McCready, test pilot, in a La Pere biplane. This supplanted the record previously made on Feb. 28, 1920, by Rudolph C. Schroeder, who drove the same biplane to a height of 36,020 feet, later corrected to the true altitude of 33,114.

At 40,800 feet McCready's engine ceased to function and he glided back to the field without any difficulty.

The plane used by Lieut. McCready was equipped with an engine supercharger invented by Dr. S. A. Moss which during altitude flights automatically changes the mixture in the carburetor and keeps the water in the radiator warm at all times, regardless of the temperature.

Another important altitude record was achieved by Lieutenant Leigh Wade, a test pilot at McCook Aviation Field, who on December 8, succeeded in attaining a height of 26,500 feet in a United States Army Martin twin motored bombing plane, also equipped with a supercharger at the engine. This achievement was regarded in its military aspect as demonstrating the practicability of daylight bombing, for previously it was considered that the limited speed of the heavy planes and their inability to reach high altitudes prevented their use on bombing expeditions except at night. In this flight an observer was carried and it was believed that a world's record for a multi-motored plane with two occupants was established.

At the maximum altitude of 26,500 feet, Lieutenant Wade reported that his gasoline feed lines froze and he was forced to descend. A minimum temperature of 34.6 degrees below zero was registered. Lieutenant Wade was in the air four hours on this flight.

The Loening Monoplane Flying Yacht carried four passengers to an altitude of 19,500 feet over Port Washington, L. I., in August.

PARACHUTE RECORD. A record for height in parachute jumping was made at Kansas City on Nov. 1, 1921, in connection with the American Legion Flying Meet, when Sergt. Encil Chambers, U. S. A., of Post Field, Fort Sill, Lawton, Okla., jumped approximately 26,000 feet—slightly less than five miles—from an army plane. The descent took eighteen minutes. While these records do not possess special significance it may be said that Sergeant Chambers had previously descended 22,002 feet, while Lieutenant Hamilton at Rantoul, Ill., made a jump at an altitude 23,007 feet, the official altitude verified. Chambers made his ascent with a pilot, Wendell Brookley, both equipped with oxygen tanks and special fur-lined clothing. When the flyers had reached the maximum altitude Chambers climbed out on the fuselage and jumped head first into space, dropping fully 500 feet before the large silken parachute opened.

ITALIAN GRAND PRIX. The aviation grand

prix at Brescia, Italy, was won by Sadi Lecoq, the French aviator, on September 5, flying 300 kilometres (186.41 miles) in one hour, 13 minutes and 19 seconds. Lieutenant Brakpaha, of Italy, finished second in one hour, 28 minutes and 58 seconds.

JAMES GORDON BENNETT CUP CONTEST. This annual competition was held in Sept., 1921, and was won by Sadi Lecoq, who negotiated the course of 300 kilometres (186.41 miles) with five turns at Etampes, France in 1 hour, 6 minutes, 17 1/2 seconds, or at an average speed of over 170 miles an hour.

DEUTSCH DE LA MEURTHE TROPHY RACE. This annual competition at Etampes, France, was won on Oct. 1, 1921, by Lieut. Georges Kirsch of France who covered 300 kilometres (186.3 miles) with five turns in 1 hour, 4 minutes, 39 1/2 seconds, or at the rate of nearly three miles a minute.

Sadi Lecoq, the French aviator who had won the James Gordon Bennett cup earlier in the season, was first to take the air, and had made great speed for the first fifty kilometres, flying this distance in 9 minutes 33 1/2 seconds. Unfortunately he was compelled to make a forced landing, suffering severe injury and smashing his airplane in the first lap of the race.

Lannes, the other French pilot, who used the machine piloted by Lecoq in 1920, was the only other entrant to finish the race making the course in 1 hour, 9 minutes, 55 1/2 seconds.

The British and Italian competitors gave up the race after going 100 and 150 kilometres respectively.

NATIONAL BALLOON RACE. To select the representative of the United States for the James Gordon Bennett International Cup competition, a balloon race was held at Birmingham, Ala., starting on May 21, 1921, and was won from a field of nine entrants by the balloon *Birmingham Semi-Centennial*, piloted by Ralph Upson with C. G. Andrus as aide. The distance accomplished was 425 miles to the landing point near Stuart, Va., and the balloon was in the air 34 hours and 40 minutes.

GORDON BENNETT BALLOON RACE. This annual contest in 1921 was started at Brussels, Belgium, on September 18, and attracted fourteen competitors from Europe and America. First place was secured by the Swiss balloon piloted by Captain Paul Armbruster, which descended on September 20 at Lamby Island, off the east coast of County Dublin, Ireland, after a trip of 476 miles. Ralph Upson of the United States flying in a Belgian balloon *Belgica I*, winner of the 1920 competition and loaned to him by Captain De Muyster, and Henry Spencer of England landed very close to one another near Carnarvon, Wales, the latter winning second place with 414 miles as compared with 413 miles for the American. The French balloons, *Marne* and *Picardy*, also landed in Wales near Dolgelly. The Italian entrant Uselli was unable to start on account of damage to his balloon, while the French balloon of M. Biernaim, though damaged, was able to start. The American entries also included Bernard von Hoffman in the *City of St. Louis*, and Wade T. Van Ormand in the *City of Akron*. The Belgian entrant *Belgica* with Lieutenant De Muyster as pilot was handicapped by carrying an extra passenger in the form of one of the

soldiers who entangled in the anchoring ropes, was carried aloft and hauled into the basket.

UNITED STATES AIR MAIL SERVICE. The creditable record of the U. S. Air Mail Service was continued and improved so that the efficiency on the transcontinental route became recognized as a model for civilian aerial transport the world over. Letters even were delivered in New York two days after casual mailing on the Pacific coast. The service developed by the end of 1921 had an average of 88.82 per cent efficiency, that is, completed trips on scheduled time since it was started in May, 1918. The Air Mail had during the year completed its wireless communications system, with fourteen stations having radio plants, three operated by the Navy Department and the others by the Air Mail Service. In February, a continuous flight, with night flying, was made between San Francisco and New York. Mail leaving the coast at 4:50 p. m. February 22, was delivered in New York at 4:50 p. m. February 23. U. S. Mail and Curtiss planes delivered to the Pacific coast photographs of the Carpentier-Dempsey fight within 48 hours after leaving.

During 1921 the U. S. Air Mail Service was maintained over the following routes with those discontinued as noted. Regular service between Omaha, Neb., and San Francisco, Calif. (part of the Transcontinental Route)—started Sept. 10, 1920.

Service between Chicago, Ill., and St. Louis, Mo. (part of the Twin Cities (St. Paul and Minneapolis)-St. Louis Division)—started August 16, 1920.

Regular service between Chicago, Ill., and Twin Cities (St. Paul and Minneapolis) (part of the St. Louis-Twin Cities Division)—started Nov. 29, 1920.

New York-Washington Division was discontinued May 31, 1921.

St. Louis-Twin Cities Division was discontinued June 30, 1921.

Repair Depot, Bustleton, Pa., was consolidated with Chicago Repair Depot, June 30, 1921—Bustleton Field abandoned same date.

An excellent showing was made by the Air Mail Service from July 1 to Sept. 30, 1921, which may be summarized as follows:

Percentage of performance, 98; number of miles flown with mail, 391,018; number of letters advanced, 10,014,280. The performance by Divisions: New York-Chicago, 98.5 per cent; Chicago-Rock Springs, 97.6 per cent; Rock Springs-San Francisco, 98 per cent.

In addition to the 391,018 miles flown with mail on regular schedule, the records show 49,662 miles of test flights and ferry trips, making a grand total of 440,680 miles flown in the three months. During this quarter there were eleven (11) crashes. In two accidents the ships were completely destroyed. In eleven cases of damage eight occurred on aviation fields and three at points of forced landings.

There were no fatalities or injury to employees on regular mail trips during this period. There was one fatality on a ferry trip. On July 16, 1921, Pilot Howard Smith lost his life in ship No. 222 on the San Francisco field. He was assigned to ferry this ship to Reno and fell from an altitude of 300 feet on the home field.

The cost per mile of operation during this period was: July, 73c; August, 71c; September, 70c.

Or an average of 71 1/3 cents per mile during this period as compared with 87 cents per mile cost during the same quarter of the year 1920.

On that portion of the Transcontinental Route between Cleveland, Ohio, and Chicago, Ill., an air distance of 335 miles, 24 weeks of 100 per cent performance on this leg of the route were completed without a break. During the 24 weeks, the mails were flown 96,480 miles without default. It was also reported that a record flight was made by mail planes between Salt Lake City and San Francisco on October 14. The time consumed from take-off at Salt Lake City (5:32) and arrival at San Francisco (11:33) was six hours and one minute. A stop for service of eleven minutes was made at Elko and a twenty-minute service stop was made at Reno; making the actual flying time five hours and thirty minutes as compared with 24 hours and 15 minutes for train No. 9, the fast exclusive mail and express train operated over the Southern Pacific Railroad between Salt Lake City and San Francisco.

COMMERCIAL AVIATION IN EUROPE. In 1921 Commercial Aviation in Europe underwent rapid development and the number of passengers and the quantity of exports and imports transported by airplane, especially between England and the Continent, experienced a decided increase. There were in Europe twenty air lines, covering a total distance of 6000 miles, France held first place with routes covering 2900 miles. Germany was second with 2000 miles and England was third. There were many local lines also, Italy leading with 1260 miles.

In Great Britain the principal interest in commercial flight centered in the service maintained across the English Channel. This seemed to grow in popular favor as illustrated in an interesting comparison of crew and passenger statistics for the Channel services for the week ending Sept. 4, 1921, as follows: Machines, 103; passengers, 427; crews, 129; total personnel, 556. For the corresponding week of 1920 the figures were: Machines, 104; passengers, 219; crews, 129; total personnel, 348.

The average monthly value of British imports by aircraft from Oct., 1920, to April, 1921, amounted to about £50,000 (normally about \$250,000). Exports averaged an equivalent of \$140,000. Reexport values were about \$135,000 a month. As showing the growth of the trans-channel service it was stated that rates on parcel post shipments by airplane from London to Paris were reduced in August to six cents a pound, and parcels were delivered to the house addressee upon payment of a small extra charge. Thus parcels were delivered in Paris on the day they were mailed in London. Nearly 200,000 letters were carried in nineteen months.

The London-Paris freight charge was one shilling a pound for packages up to 100 pounds and 10 pence a pound for packages weighing over 100 pounds.

As illustrating the support that European governments were giving to commercial aeronautics it may be stated that in 1921 bonuses and subsidies amounting to 27,885,008 francs were awarded by France to aerial navigation companies for working the following lines:

Paris-London; Paris-Brussels-Amsterdam; Paris-Strasbourg-Prague-Warsaw; Toulouse-Rabat-Casablanca; Bayonne-Nilbao-Santander; Bordeaux-

Toulouse-Montpellier; Saint Laurent-Cayenne, and Saint Laurent-Inini.

It was planned to continue these lines in 1922 and arrangements were made for opening new routes as follows:

Antibes-Tunis; Bucharest-Constantinople; Oran-Casablanca; Algiers-Biskra; Dakar-Kayes; Montpellier-Marseilles-Genoa.

Disbursement for the commercial routes mentioned represented an increase of 9,137,000 francs in subsidies, and it was proposed to use the remainder of the subsidies in aiding Civil Centres of Training for reserve pilots. Already excellent results had been achieved at these training centres.

In France since the war the growth of commercial aviation was marked, and in 1921 was reaching large dimensions. Whereas in 1919 there were but 960 persons who traveled by air, in 1920 the number of passengers amounted to 6750. In 1921 during the month of March 665 people traveled by air mail. There was a corresponding increase in the carrying of merchandise; 13,900 kilograms were carried by airplanes in 1919, while the total commercial transport amounted in 1920 to 103,330 kilograms (227,739 lbs.). In this last item were included many parcels sent from Paris to London by French dressmakers and milliners. The value of their consignments on the Paris-London service during the year 1920 exceeded 16 million francs, and in 1920 this amount of business was largely exceeded.

One of the notable air line routes in Europe was that from Paris to Prague in Czecho-Slovakia, which city by 1921 has become a veritable centre of air routes, as there were maintained daily services connecting Prague with Paris, Strasbourg, and Warsaw, with a number of new lines seriously contemplated.

In February of 1920 when the Paris service was started three passengers only arrived by air at Prague. In June there were 76. In February, 16 lbs. of parcels and 3 lbs. of newspapers arrived by air. In June 7000 lbs. of parcels and a ton and a half of newspapers were brought by air.

The duty paid on goods arriving by air despatch during the months shows the increase of traffic and was as follows: Feb. 130 crowns, March 3550 crowns, April 30,787 crowns, May 86,752 crowns, and June 207,104 crowns.

The Franco-Roumanian Air Navigation Company operating the Paris-Prague Service, had over 40 machines in service in 1921.

A notable achievement in commercial aviation was accomplished by this same Franco-Roumanian Aviation Co., which operated the Paris-Strasbourg-Prague-Warsaw air line, in extending their line to Bucharest. On October 22 the first direct flight was made, and occupied fourteen hours, including the stops at Strasbourg, Prague, and Budapest. Inasmuch as the journey by railway required about 63 hours, the saving effected was very considerable. This line also was contemplating a direct service between Paris and Constantinople for the spring of 1922, believing that the trip could be made in less than twenty-four hours. For this route a large multiple engine machine of 1200 horsepower was under construction at the Blériot plant designed to accommodate sixteen passengers and their baggage.

Further testimony as to the spread of air transport in Europe in 1921 was the announcement

that a passenger aeroplane service had been put in operation between Riga and Reval in Esthonia. Here large Fokker monoplanes with accommodation for four passengers were used on a semi-weekly service from Reval and connecting with the regular airplane service from Riga to Danzig and from Danzig to Berlin. The trip from Reval to Riga required two hours and the fare was 6000 marks.

GERMAN COMMERCIAL AERONAUTICS. The war did not altogether destroy the air transport and airplane industry in Germany and statistics covering the period from February 5, 1919, to November 26, 1920, indicated that German aeroplanes covered approximately 1,000,000 kilometres and conveyed 5545 passengers, 453,000 kilograms of freight, and 35,000 kilograms of air mail. Similar statistics for the first eight months of the year 1921, showed 3714 scheduled flights as compared with 1878 flights in twelve months in 1920. In eight months of 1921, 5581 persons have been transported by the regular air service. During all of 1920 only 2030 persons were carried. These figures indicate not only an increased amount of flying, amounting it was claimed to some 6000 miles a day, but also the establishment of new air routes and the addition of new planes for such service. The German Air Navigation Service, an association of allied aerial enterprises operating from Berlin as a centre in 1920 had 150 airplanes of various types in service or ready for operation.

The published air service schedule showed that from Berlin there were daily trips to and from Brunswick, Dortmund, Dresden, Hamburg, and Bremen, extended by the Baltic Air Service of the Sablatnig aeroplane firm to Travemuende, Warnemuende and Sassnitz, making connections with the steamers leaving those towns for Sweden, Norway, and Denmark.

The Danzig Air Service, in connection with the Sablatnig service maintained the flying routes between Berlin and the East Prussian route—Danzig, Koenigsberg, Memel—with connections at Riga and Reval, the Lloyd Air Service Sablatnig had an additional route from Berlin to Westphalia, Muenster, Bremen, Wangeroo.

The Rumpler Air Service provided planes for the Berlin, Leipzig, Nurnberg, Munich, Augsburg route, and at Munich the Bavarian Air Lloyd provides transportation facilities by air to Constance.

Direct service between Stuttgart and Constance was given by the Staehle Air Line.

The Deutsche Luftloyd, had a daily service of several planes from Berlin over Magdeburg to Hamburg and Bremen, and from Bremen over Magdeburg to Leipzig and Dresden. These routes made connection at Hamburg and Bremen with Dutch and Danish air lines for Amsterdam, Rotterdam, and Copenhagen, while at Amsterdam and Rotterdam, French and English planes were available to take passengers to London or via Brussels to Paris, where air connections can be made for Spain.

Local air service was maintained at Berlin so that travelers could make flights of about two hours' duration all around the surrounding districts for 200 marks—including the automobile trip from the city offices of the Hamburg-American Line of the North German Lloyd, to the flying field, some ten miles out of town.

It is interesting to note that while the costs of airplane fuel were greater in Germany than in most other European countries the rates of fare were said to be the lowest. Thus for ten commercial air lines in operation in 1921 the fares were as follows:

	Fare in Marks
(a) Berlin to Danzig and Königsberg.....	975
(b) Berlin to Bremen and Münster.....	650
(c) Berlin to Bremen and Wangeroo.....	650
(d) Berlin to Brunswick and Dortmund.....	800
(e) Berlin to Dresden.....	500
(f) Berlin to Leipzig, Nürnberg, Munich, and Augsburg.....	1725
(g) Hamburg to Magdeburg, Leipzig, and Dresden.....	700
(h) Munich to Constance.....	400
(i) Stuttgart to Constance.....	450
(j) Travemünde to Warnemünde, Sassnitz, and Swinemünde.....	550

In Germany in 1920 commercial aviation was largely in the hands of two main organizations which virtually control all air traffic—the Deutsche Luftreederei and the Nord Deutsche Lloyd. The latter included some eight or ten companies—the most important of which were the Rumpier Albatross, Sablatnig, and Junker concerns. In this connection it is of interest to study the following summary of the record of the *Fokker European Airlines* published late in the summer which indicated the extent of operation and the safety and reliability maintained.

Line	Route in miles	No. of Trips scheduled	No. of Trips carried out	Miles flown	Accidents involving injury to persons or loss of freight
London-Rotterdam-Amsterdam V. V. Period: Apr. 14-Aug. 23.....	265	243	230-95%	61,000	nil
Rotterdam-Amsterdam-Bremen-Hamburg V. V. Period: Apr. 14-Aug. 1.....	280	186	176-95%	50,000	nil
Danzig-Königsberg-Memel V. V. Period: Apr. 1-Aug. 1.....	180	242	233-96½%	42,250	nil
Extended during August to: Danzig-Königsberg-Memel-Riga V. V. Period up to Sept. 1.....	270	54	54-100%	13,350	nil
				166,800	

SAFETY IN FLIGHT. According to a report prepared for the Department of Commerce by the Information Department of the Manufacturers' Aircraft Association there were engaged in commercial flying in the United States in 1921 about 1200 aircraft. A conservative estimate stated the mileage flown by these commercial machines in the first six months of 1921 at 3,250,000 miles, and in that period there were but forty serious accidents in civil flying, resulting in the death of fourteen persons and more or less serious injury to fifty-two others. This summary excludes accidents to government-owned machines. In eighteen of the accidents there were no casualties, the fourteen deaths being charged to ten accidents and the fifty-two injuries to forty accidents.

Six requisites for safe flying were stated in this report. They were:

1. A machine sound aerodynamically and structurally.
2. An engine of sufficient power.
3. A competent, conservative pilot and navigator.
4. Air ports and emergency landing fields sufficiently close together to insure gliding to safety.
5. Nation-wide weather forecasts specialized and adapted to the needs of fliers.

6. National air-route charts.

Inasmuch as seventeen accidents on the list were attributed to the pilot, through carelessness, incompetence, or bad judgment, combined with other factors, there was demanded as the first of the government needs the examination and licensing of pilots.

Another condition responsible for ten accidents of those given was the inadequate landing fields or the total lack of landing facilities as the United States was woefully lacking in air ports for even the 1200 craft in operation.

In fact in the United States and its possessions there were only 271 land and water air terminals, many of them concentrated in certain localities. Of the 271 listed air ports, 145 were controlled by municipalities, 69 were privately owned and the others were a part of the Army and Navy Air Service and the air mail.

In eight accidents which occurred during stunt flying seven persons were killed and twenty-six injured—so that stunt flying in unrestricted areas was responsible for as many casualties as all other elements combined. While stunt flying was necessary to testing and essential to warfare, it was believed that there should be a governmental system of control limiting stunting to certain areas.

Two accidents were reported through carelessness on the field on the part of the spectators.

Finally five accidents were attributed to "unknown" causes which experience and scientific investigation only would solve and relieve.

Equal security was testified to in the experience of the French commercial or non-military aviators. During the year 1919-1920, 1,900,000 kilometres (1,180,603 miles) were covered by the flight of French aéroplanes. Of this total there were only 7 killed and 7 wounded, or an average of one killed and one wounded per 170,000 kilometres (105,633 miles) flown.

ANNUAL REPORT OF NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS. In December President Harding in a special message, submitted to the Congress of the United States the seventh Annual Report of the National Advisory Committee for aeronautics for the fiscal year ended June 30, 1921.

The President stated that he thought there could be no doubt that the development of aviation would become of great importance for the purposes of commerce, as well as for national defense. While the material progress in aircraft had been remarkable, the use had not as yet been extensively developed in America. This has been due, in the main, said the President, to lack of wise and necessary legislation. Aviation was destined to make great strides, and he believed

that America, its birthplace, could and should be foremost in its development.

He therefore urged upon the Congress the advisability of giving heed to the recommendations of the Committee, the first and most important of which was that a bureau be established in the Department of Commerce for the regulation and development of air navigation.

SUMMARY OF GENERAL RECOMMENDATIONS. The National Advisory Committee for Aeronautics in its Seventh Annual Report to the Congress stated that the most urgent need for the successful development of aviation at the present time, either for military or civil purposes, was the enactment of legislation providing for the Federal regulation of air navigation, and the establishment of airways and airdromes under Federal regulation. The Federal regulation should include the licensing of aviators, aircraft, and airdromes; the airways should consist of chains of landing fields providing supply and repair facilities and including the necessary meteorological stations, observations, and reports. If the Federal Government would establish and regulate transcontinental airways as recommended the committee was confident that air lines for the transportation of passengers or goods would be rapidly established by private enterprise in all parts of the country. The first national airways, however, should be carefully planned to serve military as well as civil needs. The committee reiterated its former recommendations as to the manner of accomplishing the desired results, and urgently recommended the establishment by law of a Bureau of Air Navigation in the Department of Commerce. The report also dealt with the extension of the aërological service of the U. S. Weather Bureau, the policy to be followed in developing the industry, the importance of military and naval aviation, scientific research, the air mail service, and the use of helium with airships.

AERONAUTICAL CHAMBER OF COMMERCE. An important event was the announcement made towards the end of the year of the organization of the aircraft industry in the United States into a national body or trade association known as the Aeronautical Chamber of Commerce of America, with approximately one hundred charter or founder members embracing the designing, constructing, operating, and kindred elements, and representing virtually every section of the United States, with the Executive Offices at 501 Fifth Avenue, New York City. This new organization among other objects had as its aim to develop the market and increase the use of flying machines among civilians, corporations, and transportation companies. It included within its membership the principal constructors of airplanes and motors, as well as the manufacturers of accessories, instruments, materials, and supplies, owners and operators of aircraft, various aeronautical trade papers and the principal engineers and designers.

Among its aims and purposes, as set forth in the Charter, were:

To procure uniformity and certainty in the customs and usages of trade and commerce in all matters pertaining to aeronautics, and to aid and assist in mapping out air roads and lanes; the location of landing fields, airdromes, hangars, or such other structures necessary for the ad-

vancement of aeronautics, and generally to develop the industry and the interests of the various members.

CURTISS PATENT SUSTAINED. On Dec. 15, 1921, a decision was handed down by the United States Circuit Court of Appeals of the Second District, and which reversed the decision of the United States District Court of the Eastern District of New York in the case of the Curtiss Aëroplane and Motor Corporation and Glenn H. Curtiss against Albert S. Janin and the Janin Company, Inc.

This suit was of unusual interest as it involved the claim advanced by Glenn H. Curtiss that he was the first to build a flying machine that could rise from and alight on the water. The decision, signed by Judges Charles M. Hough, Martin T. Manton, and Julius M. Mayer, marked a further step in one of the longest legal controversies in the U. S. over the development of flying machines, and established his right to a broad patent on the hydroaëroplane. Curtiss who, on Jan. 28, 1911, had demonstrated his flying boat in the harbor of San Diego, Calif., and on August 23 filed an application for a patent. His successful flight with an air machine equipped with a boat hull structure and wings buoyed with small pontoons was made on the same day that Janin, the defendant in the suit had filed his application for what he described as a land, water, and air machine.

One of the fatalities of the year was the death of the famous French aviator Gabriel Voisin who was killed along with a passenger as the result of flying so low that he was able to converse with a friend on the ground. Voisin had cut off the engine and the machine failed to clear a hedge and crashed, killing both pilot and passenger.

AEROPLANE. See **AERONAUTICS.**

AEROSTAT. See **AERONAUTICS.**

AFGHANISTAN. A monarchy of Asia situated between parallels 29° and 38° north latitude and 61° and 72° east longitude, with a long narrow strip extending to 75° east, bounded on the west by Persia, on the east by territory under the Indian government, on the north by Russian territory and Bokhara, and on the south by British Baluchistan. An agreement in respect to the southern boundaries was made in 1893 with the British government and the delimitation has been carried out at intervals since that time, and in 1921 was complete except for the Asmar section. The area is estimated at 245,000 square miles and the population at about 6,380,500. Capital, Kabul, with a population of about 150,000. Other large cities: Kandahar (31,500) and Herat (20,000). The Afghans are the dominant race, their leading tribes being the Durrani and the Ghilzais which together number from 2,200,000 to 3,200,000. Lesser groups are the Tajiks, Hezaras, Aimaks, and Uzbaks. The predominant religion is Islam, most of the people and the ruler being Sunnites. The languages spoken are Persian and Pushtoo. The country is largely mountainous but the valleys and plains are fertile, producing good crops. The chief occupations are agriculture and grazing. Among the cultivators there is a considerable class of holders under the metayer system. There are two harvests in most parts of the country, one sown in the autumn and reaped in the summer and the other sown at the end of spring and reaped in the autumn. The chief products are

wheat, barley, rice, millet, and other grains, a great variety of fruit and a plentiful supply of castor oil plant, madder, and asafetida. Sheep-raising is important and there is a large and singular variety of native fat-tailed sheep, the tail being of great size and weight, from which abundant grease is supplied, used as a substitute for butter. This sheep also affords the chief meat diet while the wool and skin are used for wearing apparel and also exported in considerable quantities. The mineral resources include copper, lead, iron, gold, and precious stones. Other industries are the production of silks, carpets, felts, and camels' and goats' hair goods. According to Indian statistics in 1919-20 the exports into India were £1,975,000 and the imports from India £1,607,000. The imports and exports from and to Bokhara were reported at about 4,000,000 rubles each. After 1915-16 the Indian trade showed a steady increase owing to the removal of restrictions such as the heavy duties and monopolies. There have been no railways, and trade has followed routes suited only for pack animals and light vehicles; and there are scant means of water communication.

The form of government is monarchical and at the head of it is the Amir, an hereditary prince who formerly received a subsidy from the Indian government under the treaty of 1893 but in accordance with the Treaty of Versailles, Aug. 8, 1919, its arrears were confiscated and it was discontinued. The total revenue has been placed at between 12,000,000 and 13,000,000 rubles which is probably an underestimate. There is a regular army, which is placed at 98,000 including 18,000 cavalry and 396 guns, but this is an old estimate and no figures were available for the strength in 1921. The Amir in 1921 was Amanullah Khan, who ascended the throne on the assassination of his father, Feb. 20, 1919. He was born June 1, 1892.

HISTORY. In accordance with the Anglo-Russian treaty of 1907 Afghanistan was a dependency of the British government and India. The treaty of 1907, however, was rescinded by the Bolshevik government with Great Britain's consent and Afghanistan became officially a free and independent state. On Feb. 28, 1921, the Afghan government signed a treaty with Moscow providing for Russian consulates in the country and for a Russian subsidy to the Amir. On March 16, the Anglo-Russian Trade Agreement was signed which is noted in the preceding YEAR BOOK, containing the stipulation that Russia should put an end to propaganda and other attempts to injure British interests in the East. On the signing of this agreement the British government demanded the immediate discontinuance of Russian propaganda in Afghanistan. In the spring of 1921 a British representative, Sir Henry Dobbs, was sent to Kabul for the purpose of negotiating a new arrangement with the Amir.

The religious element is an important one in the political situation. The population numbering about 5,000,000 are almost all Moslems and belong to the Sunni sect, that is to say to the same division as the rest of the Moslems in India, and as the Turks and Arabs. Persia to the west on the other hand belongs to the opposite sect, the Shi'ahs. The Sultan of Turkey is regarded by all the Sunni sect as the Caliph and it

is part of the sacred law that the Caliph shall be an independent ruler; but as a result of the war, the Turkish Sultan or Caliph was virtually a prisoner at Constantinople and the Holy Places had been taken away from him, Jerusalem being under the British and Mecca and Medina under the King of the Hedjaz, who was in the pay of the British Empire. This condition of things caused great anger throughout India and in Afghanistan. After signing the treaty with Moscow in February the Afghan mission went to Angora and signed there in April a treaty with the Turkish Nationalists providing for a close alliance against any alien imperialism, that is to say against the presumed purpose of the British Empire. Before that the Amir had welcomed at Kabul the former Turkish minister, Djemal Pasha, and appointed him Minister of War in the Afghan cabinet. Under this Turkish adviser a military college was founded at Kabul and Turkish officers were brought in from Angora to build up an efficient military system. When the Indian government announced its intention of running the military railway through the Khyber Pass to the Afghan frontier, it was regarded as a threat against Afghan independence and was followed by the building of forts commanding the Afghan end of the Pass. At the end of the summer it was reported that the advance of the Greeks into Asia Minor was adding to the disorder in Afghanistan and there were even rumors that the Afghans were about to invade India. Changes in the administration were reported in the summer indicating considerable improvement. On June 18 the first code of criminal law was proclaimed by the Amir.

A treaty with Great Britain resulted from the negotiations of Sir Henry Dobbs and was signed at Kabul on November 22 whereby it was agreed that no Russian consulate should be allowed on the frontier. It was hoped that this would bring to an end the difficulties on the border and those arising from Bolshevik activities. For some years the relations between the Indian government and Kabul had been strained, but after the beginning of the reign of Habibullah Khan, they greatly improved. According to the press accounts published at the time, the treaty was inconsistent with the terms of the Afghan treaty with Russia on February 28 which had provided that legations and consulates of the two countries were mutually to enjoy diplomatic privileges and which specify certain localities at which Russian and Afghan consulates were respectively to be maintained. A treaty with Turkey was proposed at the end of November, a representative of the Angora government arriving at Kabul with a draft.

AFRICA. The subject is discussed under the titles of the various divisions. See articles on the respective countries and territories including ABYSSINIA, ALGERIA, BRITISH EAST AFRICA or KENYA, EGYPT, MOROCCO, TUNIS, SOUTH AFRICA, UNION OF, etc. See also ANTHROPOLOGY and EXPLORATION.

AFRICAN METHODIST EPISCOPAL CHURCH. See METHODISTS, COLORED.

AGOSTINO, FATHER. See NECROLOGY.

AGRICULTURAL BLOC. See AGRICULTURE, and AGRICULTURAL LEGISLATION.

AGRICULTURAL COLLEGES. See AGRICULTURAL EDUCATION.

AGRICULTURAL CONFERENCE, NATIONAL. See AGRICULTURE.



AGRICULTURAL CREDIT. See AGRICULTURE, and AGRICULTURAL LEGISLATION.

AGRICULTURAL ECONOMICS. See AGRICULTURE and U. S. DEPARTMENT OF AGRICULTURE.

AGRICULTURAL EDUCATION. During the year 1921 substantial growth has been noted among the agricultural colleges of the country. Some very liberal appropriations have been made not only for buildings and equipment but in many cases for increasing salaries of the professors on the college staff.

State appropriations for the ensuing biennium have been granted the Kansas College and Station, aggregating \$2,380,000, together with \$40,000 as a revolving fund for emergency use, \$43,000 for the Fort Hays Substation, and \$14,000, \$5000, and \$4000 for the substations at Garden City, Colby, and Tribune, respectively. Of the college appropriations \$275,000 will be available for the construction of the west wing of the agricultural building, \$125,000 for a cafeteria and printing plant, \$100,000 for the central portion of a veterinary clinic building, \$52,000 for the purchase of about 250 acres of additional pasture land, and \$10,000 for studies of contagious abortion. The remainder of the appropriations is largely for salaries, maintenance, and repairs.

The five State-supported educational institutions of Ohio are making a united campaign to secure appropriations aggregating over \$9,000,000, of which about \$6,000,000 is for buildings. The buildings desired by the State University include a new agricultural building costing \$369,000 and \$157,000 for other agricultural buildings.

The College of Agriculture of the University of California received appropriations for instruction, experimental, and extension work in agriculture aggregating \$2,500,000, an increase of 94 per cent over the previous biennium. In addition \$400,500 was granted for building at the University Farm, and \$127,587 was granted to complete the purchase of land and water rights.

At the Michigan College and Station the appropriations for the ensuing biennium aggregated \$990,000, the largest sum in the history of the institution.

The University of Louisiana, of which the College of Agriculture is a part, as a result of action taken by the state constitutional convention will receive \$7,500,000 for new buildings and equipment. The new constitution also provides a one-half mill tax which is estimated to yield \$1,000,000 per annum for maintenance of the university.

At Cornell University contracts have been let for the new dairy building, to be erected at a cost of about \$400,000. This will constitute the first unit of the \$3,000,000 building programme authorized by the State legislature.

The movement for the improvement of college teaching has made progress during the year. Some changes have been made in the agricultural curricula, entrance requirements have received some revision, and the elective system has been given greater elasticity. In certain agricultural colleges rather definite action has been directed toward improving the personnel of the teaching staff. The experiment of two or three institutions in developing special conferences or in the employment of special lecturers to aid college teachers in their effort for professional improvement,

demonstrates that much can be accomplished in this way.

The committee on the improvement of college teaching makes the following suggestions:

- (1) That college presidents, deans, and heads of departments study their own facilities for helping their teachers improve their work.
- (2) That a definite policy with reference to sabbatic leave and other leave for professional improvement be adopted by each college and that all of these facilities be made known to all of their teachers.
- (3) That teachers be encouraged in every way possible to study at other institutions where good opportunities for professional study are offered. It is the opinion of many that it would be a good plan, if colleges had the funds available, to pay the expenses of a few of their teachers each year to attend summer school at other colleges. The report states further that administrative officers believe that keeping up to date in vocational practice is beneficial to teachers when such practice is related to the subject-matter under consideration.

VOCATIONAL AGRICULTURAL EDUCATION. The States as a whole have made progress in the development of vocational agricultural education during the year. While many of them are still feeling the effects of the agricultural depression, the enrollment of students in vocational schools and in agricultural colleges has increased.

Some new lines of work have been developed during the year. State supervisors and administrators are placing emphasis upon the need of making thorough surveys of communities to determine whether or not it is advisable to establish an agricultural department in connection with the high school. Practically every State has some plan under way for part-time and evening class work in vocational agricultural courses. It is interesting to know that leaders in farmers' organizations are taking active interest in the programme for vocational agricultural education. Such leaders have begun to realize the need of intelligence among farmers in order to obtain the best coöperation in the intelligent production and distribution of farm products. Many of the farmers' organizations highly commend the work being done in vocational agriculture through part-time and evening classes.

It is gratifying to note that progress has been made during the year in the establishment of vocational work in a larger number of rural communities, especially where consolidation of rural schools has been accomplished. The agricultural teachers have given considerable time in certain sections to prevocational agriculture. While it is not possible, as a rule, for the agricultural teachers to teach these courses, they become potent factors in directing and supervising the teaching of the less experienced teachers in this field.

There have developed in the States four types of instruction in vocational agriculture, (1) the all-day school, (2) the short-unit course school, (3) the part-time school, and (4) the evening school.

TEACHER-TRAINING. The enrollment in teacher-training classes for 1920-21 was 2936, with a teacher-training staff of 278, showing a substantial increase in number of students in the teacher-training classes. Progress is noted in practically all the states in the programmes which

have been set up for both resident teacher-training and training in service.

ELEMENTARY AGRICULTURAL EDUCATION. The teaching of agriculture in elementary or rural schools has received impetus during the last two or three years from three sources, (1) club leaders and other extension agents, (2) the operation of the Smith-Hughes Law, and (3) better trained teachers for rural schools. Leaders in rural life are beginning to realize that elementary agriculture has a place in the programme of the rural school. Consolidation of rural schools has had a part in this movement. In a few States, State departments of education have made provision for the preparation of courses of study in elementary agriculture for teachers of rural schools. It is believed by many that courses of this character will serve a useful purpose in stimulating the teaching of agriculture, particularly in the consolidated school where sufficient teaching force and other equipment are available. More and more it is being realized that the rural school programme should be based on those things which rural people need to know.

AGRICULTURAL TRAINING FOR DISABLED EX-SERVICE MEN. Marked progress has been made during the year in opportunities offered for the training of disabled ex-service men. The number of men who had elected training in agriculture for their vocational training under the rehabilitation act up to the close of the year was 15,000. Many more, however, had availed themselves of the prevocational training as related to general farming, live-stock raising, dairying, poultry raising, horticulture, and beekeeping. Preliminary figures for forty men rehabilitated along agricultural lines showed that formerly men had earned an average wage of \$785.00, and since rehabilitation they were receiving an average salary of \$1477, an increase of \$692.00. These men, who were so disabled that they could not return to their former occupations, have been enabled as a result of training to command larger wages than they were earning before entering the war.

In the work of retraining ex-service men the agricultural colleges and many secondary agricultural schools entered into hearty coöperation with the Federal Board and, in so far as their capacity permitted, arranged for prevocational schooling for the men needing it.

The Sixty-seventh Congress enacted the Sweet Act, which was approved August 9, 1921. This Act transfers the rehabilitation work from the Federal Board for Vocational Education to the U. S. Veterans' Bureau. The Government is making plans to establish two or three special schools in different sections of the country which shall be properly equipped for offering courses of training for disabled ex-service men.

FOREIGN. In France there has been established recently, under the patronage of the agricultural society of France, a new practical school of agriculture, known as the La Félicité Higher School of Agriculture. The object of the school is to give instruction in the scientific methods of agriculture in order to train young men to become farm managers or to direct colonial farming enterprises. A tract of 247 acres of land has been secured for the school.

Important changes in the organization of higher agricultural education in Belgium have been made as a result of a royal decree of April 8,

1920. A license in agricultural science is created. The license is to be awarded on the completion of a two years' course in order to facilitate the access of farmers' sons to the agricultural education institutions. The course for the bachelor's degree will extend through four years.

Agricultural instruction has been organized in the Republic of Mexico based on the establishment of farm schools.

At the Ontario Agricultural College the building of the dormitory for men, which was suspended during the war, is nearing completion. A farm economics department has been established in the college, financed by the provincial funds.

The University of Alberta has established a continued course in arts and agriculture whereby the degrees of B. A. and B. S. A. are both conferred in six years.

The study of agriculture in Ecuador has recently taken a forward movement, due doubtless to the labors of the specialists of the Italian Commission. The late Congress passed a law which is of vital importance to the advancement of agriculture. This law provides for the establishment of courses of study in the various schools, the teachers to be increased as required, and college officials are authorized to give preference to agricultural instruction in the use of their funds.

AGRICULTURAL EXPERIMENT STATIONS. The experiment stations of the United States have been passing through a critical period. They have not been able to grow, and many of them have been unable to maintain themselves on a prewar basis. On the other hand, the calls upon them and the need for investigation have greatly increased. Agricultural extension and vocational teaching have been rapidly developed in the past seven years, with very little increased provision for the agencies which must supply the information.

Happily, there are some indications that the stations have turned the corner financially and are on the road to an era of larger prosperity. The situation of many of them was measurably improved during the year. In some cases the appropriations or allotments increased as much as 50 per cent; but in about half the States there was no increase whatever, and in only one-fourth did it amount to as much as \$10,000. In the majority of cases, therefore, very little opportunity for expansion was provided.

The action of many of the States was encouraging, even though the appropriation was not large. The New Hampshire Station received an appropriation for the first time in its history, and in Delaware the appropriation for the station and college farm was doubled, being increased to \$20,000. On the other hand, California nearly doubled its biennial appropriations for agricultural work including that of the experiment stations. Connecticut raised the biennial appropriation for the State Station from \$45,000 to \$82,000, and in addition gave \$10,000 for tobacco investigation. The latter work is in coöperation with a growers' organization which is lending liberal financial and other aid. In Florida the legislature provided for a branch station in the Everglades and appropriated \$40,000 for the biennium. It also authorized a substation for tobacco investigation, with an appropriation of \$30,000, the land being donated by the tobacco

growers. The State appropriation in Indiana was increased to about \$200,000 per annum under the provision of a mill tax. A department of home economics has been provided, to conduct investigations in that field. Kansas largely increased the appropriation for the station, and provided \$275,000 for the completion of the agricultural building, and \$10,000 for studies of contagious abortion. Montana gave liberal increases for its main and substations, the appropriation totaling for 1921-22, \$143,340, and for the following year, \$153,000. The appropriation for the Utah Station was increased by \$15,000, bringing that for the biennium up to \$115,000. In a number of other States more liberal appropriations for the colleges permitted a larger allotment of funds to the experiment stations.

The trustees of the University of Ohio authorized the establishment of a Plant Institute under the College of Agriculture, for promoting research in the field of agronomy and horticulture. The Thompson Institute for Plant Research was opened at Yonkers, N. Y., with Dr. William Crocker as director.

The stations suffered an unusually large number of changes in directors during the year. These affected the stations in Alabama, Arizona, Florida, Louisiana, Maine, Minnesota, New York, Ohio, Oklahoma, Utah, and West Virginia. In several cases some of the oldest directors in point of service were involved. Two of those who retired from the directorship, Dr. W. H. Jordan of New York and Prof. Charles E. Thorne of Ohio, had occupied such positions from the establishment of the stations under the Hatch Act, and others for from fifteen to twenty-five years.

Dr. H. P. Armsby, Director of the Institute of Animal Nutrition, associated with the Pennsylvania Experiment Station, and one of the most eminent world authorities on animal nutrition, died October 19. B. H. Hite, chief chemist of the West Virginia Station since 1895, and professor of agricultural chemistry of the State University, died in the same month. In the first week of January, 1922, Dr. William Frear, head of the Department of Experimental Agricultural Chemistry and vice-director of the experiment station in Pennsylvania, passed away after over thirty-six years of continuous service in that institution.

For the first time in the history of the American experiment stations a list of the various projects carried on at the different stations was compiled and issued by the Office of Experiment Stations. The list is classified by subjects and includes nearly 4000 projects. It was welcomed by workers as an important aid in showing the field covered, an evidence of what remains to be done, and a means of maintaining contacts between investigators having common interests.

There was considerable revival of activity among the stations in Europe, though many which were suspended during the war have not yet been revived and others are maintained on little more than a nominal basis. The stations in Austria and Hungary are considerably disorganized. Most of the work in Russia, formerly on such a high plane, has been interrupted and the equipment frequently dissipated, but of late there has been revival of interest and support for agricultural investigation.

In Great Britain, following the repeal of that

part of the agricultural act providing for guaranteed prices, an appropriation of £1,000,000 was made for agricultural education and research. To attract and retain talented workers the British Ministry of Agriculture has instituted a scheme of scholarships, graded positions, salaries, and tenure, which affords a definite career to persons connected with the agricultural research institutions in England and Wales. In addition, specialists are to be provided at "advisory centres" to aid farmers, with similar grades of salaries. Research scholarships have been established and several traveling fellowships are contemplated.

An Imperial Bureau of Mycology was established at Kew for work on fungus diseases of plants in the British over-seas dominions and colonies.

Plans have been matured for a new station at Bari (Puglia), Italy, to deal with plant breeding, dry farming, plant physiology, and other agronomic matters. The experiment and research bureaus of the directorate of Tunis, which were interrupted by the war, have been reorganized and their equipment enlarged.

In Egypt the Cotton Research Board, a war emergency organization, was definitely established under the Ministry of Agriculture, and will carry on investigations in all branches of cotton production. In China a central experiment station and sixteen substations for work on cotton were established under the auspices of the Chinese Cotton Mill Owners' Association. The establishment of a cotton station in Syria has been ordered by the French High Commissioner.

AGRICULTURAL EXTENSION WORK. During 1921 the Coöperative Extension Work in agriculture and home economics carried on in all the States by the United States Department of Agriculture and the state agricultural colleges under the Smith-Lever Act of May 8, 1914, and related Federal and State legislation proved its great usefulness as a means of aiding and encouraging the farming people in a time of great adversity. The sudden and rapid fall of the prices of farm products and the lessening of foreign demand owing to poverty abroad brought dismay and financial loss to multitudes of farmers. Every effort had to be made to ease their burdens as far as possible and to help them in cheapening the cost of production, storing surpluses or turning them into new channels of distribution, and arranging the best possible system of production for the ensuing year.

The extension agents were therefore compelled to give unusual attention to economic problems. That they had considerable success was shown by the fact that the number of counties having agricultural agents increased during the year in spite of financial difficulties affecting many counties. There was, however, a reduction in the number of home demonstration agents, particularly in the South, and no increase of special leaders for the boys' and girls' clubs. This does not show any loss of interest in the work for the farm women and children. There were many evidences that the farming people and others who understood the problems of agriculture and country life were convinced that the extension work was already a strong factor in improving the home and community life in the open country and that more than ever it was necessary to make strong efforts

to render country life more satisfactory and attractive to the women and children on the farms. Much attention was therefore given to strengthening this side of the extension work and laying foundations on which to build as soon as financial conditions improve.

The movement for the more complete organization of the farming people to protect their economic interests and improve their general condition continued during the year with accumulating force. There was especially a great increase in the number of small and large commodity organizations for the grading, standardizing, storage, and sale of farm products. The older farm organizations also took much more interest in these matters. The farm bureaus, representing in a large way the general interests of agriculture, somewhat as chambers of commerce do for commercial interests, spread rapidly into new regions and particularly fostered the formation of commodity organizations and the consideration of questions of coöperation, transportation, legislation, and finance affecting agricultural operations. Their state and national Federations were particularly active in the larger ways. The American Farm Bureau Federation held its third annual meeting at Atlanta, Ga., in November. At this meeting 38 State Federations were represented by 63 voting delegates. In 8 other States, county and state farm bureaus had been organized and were getting ready to join the national federation. About 1,000,000 members were enrolled in the 1500 county farm bureaus. A special committee of women was formed to plan the Federation's work relating to the farm home and to encourage the farm women to participate actively in the work of the county farm bureaus. The main office of the Federation was continued at Chicago, with a branch office at Washington. J. R. Howard of Iowa was reelected president of the Federation at the Atlanta meeting.

During 1921 agricultural agents were employed in about 2100 counties, home demonstration agents in about 800 counties and paid leaders of boys' and girls' club work in about 300 counties. There were also about 750 extension specialists in the various branches of agriculture and home economics who went out from the agricultural colleges to supplement the work of the county agents. Including the supervisory officers and their assistants about 5000 persons were engaged in extension work.

The county agents, assisted by marketing specialists, aided the farm organizations in the coöperative selling of all kinds of crops and live stock and in the buying of many farm necessities. The Bureau of Markets of the United States Department of Agriculture, State departments of agriculture and the extension divisions of the agricultural colleges coöperated closely in these activities. The value of all products coöperatively marketed and purchased with the aid of the extension forces during 1920 was nearly \$60,000,000 with a saving of over \$6,500,000 or about 11 per cent. The coöperative work relating to cotton grading and stapling saved the farmers millions of dollars in the marketing of their cotton crop alone.

After the sensational drop in the price of cotton in the fall of 1920 the extension forces in the cotton States, aided by farmers' organizations and business men made by a campaign which the

cotton acreage in 1921 was materially reduced. The same forces coöperated in instructing the farmers what crops to grow instead of cotton. The live stock industry which had made great progress in recent years in the cotton territory was also seriously affected by the falling prices for farm animals and the county agents had hard work to prevent farmers from selling good breeding stock to be slaughtered. In spite of such handicaps much useful work was done in keeping up interest in pure-bred live stock.

Over 230,000 adult farmers conducted demonstrations under the supervision of the county agents on 2,274,554 acres. The largest acreage was with corn, 539,794 acres, with an average yield of 41.6 bushels per acre or more than double the average yield of the whole territory. Like results were obtained from demonstrations with cotton, oats, wheat, legumes, potatoes, etc. The county agents were also very active in promoting terracing, drainage, liming, better seed, poultry culling, tick eradication, prevention of hog cholera, blackleg, and anthrax, etc.

In the Northern and Western States the county agricultural agents have for several years done a large amount of work connected with the organization of coöperative enterprises, the results of which have been cumulative. In 1920 reports by about half the agents showed that coöperative organizations effected through the influence of the agents did business amounting to \$375,714,660 with savings to the farmers of \$21,152,773. Increased attention was given to the development of local programmes of work through community groups. In 1920 there were 11,561 of these community committees, under whose auspices 31,914 meetings were held with an attendance of 1,214,551 persons interested in the extension programmes. About 60,000 demonstrations with crops and livestock were conducted on farms. The new area brought into profitable production through drainage or irrigation equaled six average Ohio counties. Over 50,000 farmers were assisted in securing 1,345,562 bushels of improved seed, and about 20,000 farmers grew 2,925,855 bushels of improved seed for sale. A large amount of rodent-control work was done in the West. Over 180,000 cows were under test for milk production in 555 cow-test associations. Farmers were assisted in purchasing 35,863 pure-bred sires and females, 232,700 animals were tested for tuberculosis, 287,694 cattle were treated for blackleg and 412,811 hogs vaccinated for cholera. During the year 441 county agents assisted 11,000 farmers in summarizing and analyzing their accounts, a large number of whom made profitable changes in their business; 860 farm-accounting schools were held with an attendance of 19,744.

The work of the county women agents, commonly called home demonstration agents, continued to include food production and conservation, diet, clothing, health, sanitation, household equipment and management, and the social interests of the rural community. The rapidly increasing number of farm women engaging in the work of community clubs, farm bureaus, and other organizations, and their closer participation in such work along with the men is materially strengthening the home demonstration work.

In the Southern States economic conditions greatly increased the importance of the work of

the women and girls in producing fruit, vegetables, poultry, eggs, milk and butter for home consumption.

In 1920 the members of the home demonstration clubs cured, according to standard methods, 9,477,988 pounds of meat and 2,173,626 pounds of sausage and rendered 2,648,686 pounds of lard. The canning of meat and fish under steam pressure was much increased as well as combination packs of meat or fish with vegetables.

The women grew 195,343 gardens and established 16,525 home orchards and vineyards. They canned over 11,000,000 quarts of fruits and vegetables and over 2,000,000 pints of jellies and marmalades. They stored over 1,000,000 pounds of dried fruits and vegetables and preserved in brine over 3,500,000 pounds. About 700,000 pounds of butter were made under demonstration methods, over 2,000,000 pounds of cream were sold, together with large amounts of poultry products. More work than ever before was done by the agents in connection with the planning or remodeling of farm houses, the rearrangement of kitchens, installing of water, heating, and lighting systems, introduction of home-made and purchased labor-saving devices and beautification of the home and adjacent grounds. Special emphasis was laid on diet, clothing, and home and farm sanitation as related to the health of the family. The benefits of the more liberal use of milk, butter, vegetables, and fruit were widely taught and demonstrated. The proper place of milk in the diet of children was stressed and much attention was given to school lunches. The home demonstration work is proving an important factor in the prevention of such diseases as pellagra, scurvy, and tuberculosis. Nearly 100 negro women agents supplemented the work of the white agents in improving the conditions in negro farm homes.

In the Northern and Western States over 17,000 local leaders of home demonstration work were secured through 3000 training groups supervised by the women extension agents. The local leaders established extension projects in their communities through which 71,000 home and community demonstrations were made from which 108,417 families adopted suggestions. In all, 1,336,787 persons were reached by the work of the home demonstration agents. About 84,000 women were enrolled in farm bureaus in 1920. In several States legislation was specially modified to include home demonstration work. Increased attention was given to projects relating to the health and comfort of the family, care of children, conveniences in the farm home and the welfare of the rural community. The extension agents worked closely with state and county health officers, school authorities, doctors, nurses, and Red Cross officials.

Community enterprises included recreation centres, rest rooms, libraries, reading circles, day nurseries, and coöperative associations. To train extension workers in home economics the agricultural colleges in New York, Minnesota, and Wisconsin offered special four-year courses, and eight colleges gave special courses at summer schools.

In the Northern and Western States 216,479 boys and girls were enrolled in clubs, 59 per cent of whom completed the work. Where county club agents were employed the average club membership in the counties was 441, as compared with 60 where the county agricultural or home demon-

stration agents gave part time to this work. The state and county club agents held 1271 training conferences for voluntary local club leaders, of whom 8391 assisted in carrying out the club programmes. In 686 counties boys and girls were eligible to membership in the farm bureaus. In increasing measure the club programmes have a definite relation to the extension programmes for the adult farm men and women. The club work covered a wide range of projects in the production of crops and live stock, canning, preserving, food selection and preparation, clothing, etc.

In the Southern States the girls grew about 180,000 gardens with products valued at over \$1,500,000, canned over 5,000,000 quarts of fruits and vegetables, besides large amounts dried, brined or sold fresh, and produced poultry products valued at over \$2,500,000. They were also active in dairying, bread-baking, meal preparation, making of clothing and beautification of their homes. Three hundred and sixty girls were attending normal or agricultural schools on scholarships awarded for excellency in club achievements, and 1880 girls were paying all or part of their school expenses from money earned from the sale of club products. The 113,861 white boys enrolled in clubs produced agricultural products valued at over \$4,250,000. Bankers and business men loaned or gave them \$659,000. This enabled them to introduce pure-bred live stock and seed into sections where they were practically unknown. Their average yield of corn was 57 bushels per acre as compared with 22.6 bushels in the Southern States generally. About 70,000 negro boys and girls had cotton, animal, and canning clubs.

The extension specialists from the agricultural colleges and the Department of Agriculture aided the county workers and supplemented their work in counties not yet supplied with extension agents. They took an active part in helping the county agents and farming people to shape and successfully conduct the local programmes of extension work. They prepared numerous publications, answered inquiries, and gave instruction and demonstrations at numerous movable schools, farmers' institutes, and other meetings.

Over 10,000 Farmers' Institutes with a total attendance of over 2,300,000 were held in 19 States by the agricultural colleges and in 15 States by the State Departments of Agriculture. These meetings, addressed by 1400 lecturers, which furnish a free forum for the discussion of many agricultural and country life subjects by the farmers themselves and also have recreational features, are increasingly popular among the farming people.

Extension work in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands continued to be carried on through the Federal experiment stations. In Alaska the settlers coming into the Tanana and Matanuska Valleys, many of whom have had little agricultural experience, were helped in growing those crops which the station's investigations had shown to be best adapted to those regions. Distribution of suitable varieties of seed to various parts of Alaska was also continued. In Hawaii extension activities were vigorously conducted on the different islands. In Porto Rico the propagation and distribution of economic plants by the station has been very useful. A striking result is the greatly increased planting of trees on farms and in municipalities.

As the result of campaigns by the station 90 vats for dipping cattle to eradicate fever ticks have been established. A mimeographed extension publication was widely distributed in the island. In Guam 1291 boys and girls were enrolled in clubs for the growing of corn, beans, roots, vegetables, pigs, and poultry, and 88 per cent of the members completed the season's work and submitted written reports. In cooperation with the insular department of education school gardens were grown and aid given the teachers in garden instruction. In the Virgin Islands extension work was begun by sending out mimeographed extension notes. Special attention was given to the growing of fruits and vegetables now largely imported.

In England extension work was carried on through County Agricultural Councils. Connected with these were 40 County Agricultural Organizers, 80 per cent of whose salaries and expenses were paid by the Board of Agriculture. There were also traveling lecturers in dairying, horticulture, poultry, and other subjects. Many demonstrations were made and exhibits at numerous fairs and other places. Over 1500 women's institutes were held in England and Wales. The National Federation of Women's Institutes published a monthly magazine called *Home and City*. In Scotland the agricultural colleges at Glasgow, Edinburgh, and Aberdeen had a staff of extension workers. The counties had assignments of such workers who acted as agricultural agents. Special problems were referred to specialists at the colleges.

In the 33 counties of Ireland were county councils under which were itinerant extension workers, men and women, paid in part by the Department of Agriculture.

In Canada the provincial Department of Agriculture carried on extension work, through itinerant Agricultural Representatives. There were also Junior Farmers' Improvement Associations, boys' and girls' clubs and farmers' clubs. Women's institutes, which began in Ontario in 1898, had a National Federation with about 100,000 members.

In France traveling professors under the Ministry of Agriculture gave instruction and demonstrations throughout the country. Much use was made of moving pictures carried on trucks. Women were instructed in canning according to methods used in the United States.

Belgium had a well-organized extension system. Much attention was given to farm women through housekeeping advisers and a Farm Women's League.

In Denmark both the Government and agricultural societies supported extension work through agricultural advisers and school teachers.

In Norway and Sweden special attention was given to instruction in the use of tractors.

In Germany farmers were especially instructed in bookkeeping made necessary by income and other taxes. Bookkeeping bureaus were established in the provincial agricultural associations. Farm housewives' societies employed traveling teachers to give instruction in agriculture and home economics to women and girls.

In Italy about 275 itinerant teachers continued instruction in many branches of agriculture and helped to form many cooperative agricultural societies.

In India and Burma there were many demon-

strations on farms and at fairs. Special instruction was given on the use of better implements and seed and how to utilize fodder to the best advantage and store it against famine.

Agricultural extension work was also carried on in Argentina, British Guiana, Cyprus, Gold Coast of Africa, Jamaica, Spain, and Switzerland.

The general interests of the cooperative extension work throughout the United States continued to be promoted by two extension offices in the States Relations Service of the Department of Agriculture until Oct. 1, 1921, when a single combined office was established under the direction of Dr. C. B. Smith. The work in each State was administered by an Extension Director with headquarters at the Agricultural College, who was a joint representative of the Department and the College. Under the Director were State Leaders of county agricultural agents, home demonstration agents and boys' and girls' club work, together with a force of extension specialists.

For the fiscal year beginning July 1, 1921, the total fund available for extension work in the States was about \$18,500,000. Of this about \$1,050,000 was derived from direct appropriations to the States Relations Service, \$100,000 to other bureaus of the Department of Agriculture, \$4,080,000 from the Smith-Lever Act, and \$1,500,000 from the supplementary Federal fund, making the total Federal contribution \$6,730,000. This was met by approximately \$11,766,000 from sources within the States, including \$5,100,000 to offset the regular and supplementary Smith-Lever funds, \$1,390,000 additional state and college funds, \$4,388,000 from counties and \$887,000 from farm bureaus and miscellaneous sources. About \$9,670,000 was used for the demonstrations and other activities of the county agricultural agents. Much of their work bore on problems of the farm home, but \$2,980,000 was allotted to the work of the home demonstration agents. About \$1,244,000 was used for work among boys and girls, about \$3,282,000 for the tasks of the specialists in agriculture and home economics, \$1,000,000 for administration, and \$309,000 for publications.

AGRICULTURAL LEGISLATION. Despite the strongly manifested determination of farmers to play a more influential part in the framing of national policies and the numerous agricultural measures pending before Congress in apparently favorable strategic positions at the end of 1920, the completion of the final session of the Sixty-sixth Congress on March 4, 1921, showed surprisingly little of practical achievement. Efforts to harmonize the differences between the House and Senate on the bill designed to assure producers of the right to bargain collectively through regulated cooperative agricultural associations without liability of prosecution under the various antitrust laws met with failure, and the bill died in conference. A similar fate befell the bill to regulate cold storage practices and the various plans for the utilization of the Government air nitrate plants for fertilizer manufacture.

An emergency tariff bill imposing high duties on various farm products was agreed to by both houses, but vetoed by President Wilson. A joint resolution directing the immediate revival of the activities of the War Finance Corporation with a view to assisting in the financing of the exportation of agricultural and other products to foreign markets by providing special credit facilities was

likewise vetoed, but in this case the veto was overridden and the measure became law.

The only other legislation of agricultural significance to be completed at this session was embodied in the annual appropriation act for the support of the U. S. Department of Agriculture. This measure continued the joint congressional commission to investigate the feasibility of short-time rural credit legislation, and appropriated \$2,000,000 for the purchase by the Department of seed grain for sale to farmers in drought-stricken areas or for loans for the same purpose. Provision was also made for a World's Dairy Congress in this country in 1922, but subsequent legislation postponed this event until 1923.

The convening in April of the extra session of the Sixty-seventh Congress brought the reintroduction of most of the various agricultural bills which had failed of passage and an unusual number of new measures designed to alleviate the continued agricultural depression. Some weeks later occurred the most striking event of the year, the formation by a group of Senators and Representatives of the so-called "agricultural bloc." This group has been recently described as a "casual, voluntary, and purely informal gathering of men who sought to formulate and help enact a constructive, national agricultural program . . . as an emergency measure for handling some of the legislative features of the great and most unusual agricultural emergency." The senatorial group is reported as consisting of about twenty of the ninety-six members, mainly those of the middle West and South, and that in the House one member from each of the twenty-five more important agricultural States. In each case party lines were ignored.

The activities of the "bloc" attracted wide public notice. Strong criticism soon followed from numerous directions, chiefly on the ground that the objects sought were class legislation and that the "bloc" was destructive of the prevailing system of party action and responsibility. On the other hand, its formation was quite as warmly defended as an attempt to achieve openly for agriculture what had been sought under cover for many other interests for years, and furthermore that the prosperity of American agriculture was a matter of fundamental national concern. Irrespective of the merits of these contentions, the operations of the "bloc" undoubtedly tended to focus public attention more strongly than ever before upon the agricultural situation and its needs, and its efforts were followed by the enactment of an unusual amount of important agricultural legislation.

One of the earliest measures was the provision on June 7 of a Joint Congressional Commission of Agricultural Inquiry to investigate the prevailing economic status of agriculture, especially as regards prices, credits, and marketing and transportation problems. This commission held extended hearings and submitted a report on December 14 dealing with the agricultural crisis and its causes, which is noted elsewhere. (See AGRICULTURE.) On the same date the time for its final report was extended until April 15, 1922.

An act designed to regulate the marketing of live stock and its products, known as the Packers and Stockyards Act, was approved by President Harding, August 15. Under this measure, packers engaged in interstate commerce are prohibited

from unfair, unjustly discriminatory, or deceptive practices, manipulating or controlling prices, or otherwise creating a monopoly or restraining commerce. Commission merchants, stockyards services, and dealers at yards are likewise required to establish and maintain rates which are reasonable. The enforcement of this act is entrusted to the Secretary of Agriculture, subject to appeals to courts, with heavy penalties for its violation. Efforts of certain live stock dealers at the Chicago stockyards to obtain an injunction forbidding the enforcement of the act were denied December 20, and announcement was made that immediate compliance with its provisions would be insisted upon.

The long campaign for the supervision of grain exchanges found fruition August 24 in the approval of the Future-trading Act. This act imposes a prohibitive tax of twenty cents per bushel on speculative transactions known as "puts and calls," "bids," and the like, and a similar tax on grain sold for future delivery except by owners or certain authorized contract markets. These markets are to be under the supervision of the Secretary of Agriculture, who is given authority, in conjunction with the Secretary of Commerce and the Attorney-General and subject to appeals to the courts, to punish violations of the act by revocation of the privileges of these markets or of individuals trading thereon. A test suit to determine the constitutionality of this measure was pending at the close of the year.

An emergency tariff law was signed by President Harding May 27 covering a period of six months, and on November 16 extended until otherwise provided by law. This measure imposed high duties on imports of a large number of farm products, such as thirty-five cents per bushel on wheat, forty-five cents per pound on scoured wool, and twenty-five cents per bushel on potatoes.

The War Finance Corporation Act of 1918 was amended August 24 with a view to assisting producers of and dealers in agricultural products by providing special credit facilities in foreign markets. Under this legislation, the corporation, reorganized to include the Secretary of Agriculture as one of its six members, is empowered until July 1, 1922, to issue securities to an amount not exceeding \$1,000,000,000 at any one time, using the proceeds of the loans to aid in the transportation and exportation of agricultural products and to provide credit for agricultural purposes, including the production and marketing of live stock. Operations under this act proceeded actively up to the close of the year. (See also AGRICULTURE.)

Another credit measure authorized additional deposits by the Secretary of the Treasury in the Federal land banks to provide a larger working capital for loans in the interim pending an issue of land bank bonds. These advances may now aggregate \$50,000,000. Authority was also given to increase the interest rate on the land bank bonds from 5 to 5.5 per cent per annum until June 30, 1923, thereby materially increasing their marketability and in corresponding degree the usefulness of the land bank system.

Toward the close of the year announcement was made by leaders of the "agricultural bloc" that efforts would be made to secure the immediate passage of three additional measures. These were a provision whereby agriculture would be

specifically represented on the Federal Reserve Board, the bill to legalize cooperative agricultural marketing associations, and legislation creating a new system of rural credits upon longer and more satisfactory terms than at present to live stock producers, grain growers, and similar branches of farming with a long period of turn-over. Agreement had been reached in the Senate to vote on the question of an agricultural representative on the Federal Reserve Board on Jan. 17, 1922. A bill authorizing associations of producers of agricultural products was passed by the House May 4, and was pending on the Senate calendar at the end of the year.

The principal event of the year in Canada was the election on December 6 of a new Dominion Parliament in which the Progressives, a group definitely associated with agriculture, increased in strength from fourteen to sixty-five out of two hundred and thirty-three members, causing the overthrow of the ministry and becoming the second party in Canada. The Progressives had previously been in control of Ontario, which during the year enacted three important laws to promote agricultural development through provincial loans on long-time terms to farmers on their real estate and short-time credit to cooperative associations for current farm expenses. Very little agricultural legislation was enacted by the out-going Dominion Parliament, the principal measure providing a system of grading dairy products for export.

In Great Britain the Agriculture Act of 1920 came into operation Jan. 1, 1921. This measure was intended to make permanent many of the temporary war time provisions of the Corn Production Act of 1917, including the guarantee of minimum prices of wheat and oats, the regulation of farm wages, and the enforcement of proper cultivation of lands. On October 1, however, this measure was largely repealed, the Agricultural Wages Board and other machinery for fixing a minimum wage for farm labor being abolished, with the substitution of voluntary joint conciliation committees of employers and laborers in cases of disagreement, and the restriction of payments for wheat and oats to the crops of 1921. This action was attributed to the need of retrenchment in Government expenses, and to a change in policy under which Government aid would be rendered not to individuals but through the promotion of agricultural education and research. An appropriation of £1,000,000 was made for this purpose, of which £850,000 was available in England and Wales and the balance in Scotland.

A Danish law required farmers to deposit with the State, at a fixed price, their entire wheat and rye crops of 1920 and 1921 except their seed supply, the ministry of agriculture then provisioning the country and exporting any surplus. In Holland a new law became effective for the labeling and inspection of fertilizers, seeds, and feeding stuffs. Funds were provided from the treasury in Czecho-Slovakia for loans to superphosphate manufacturers to increase production at a fixed sale price to the Government.

More or less elaborate systems of agrarian land reform went into effect in Greece, Lettonia, Mexico, Poland, and Portugal. Provision was made in Italy for the organization of traveling chairs of agriculture to carry on extension work.

AGRICULTURAL ORGANIZATIONS AND CORPORATIONS. See AGRICULTURE.

AGRICULTURE. The year 1921 was an extremely difficult one for agriculture in the United States. The production of staple crops, while not as large as in some years, gave a large surplus and with satisfactory prices would have constituted a prosperous year. The acreage was large and the season generally favorable, but prices were unusually low, often below the cost of production. The industry suffered, therefore, along with other industries, but to an increasing extent.

The total production of bread grains was about up to the average, but this included one of the largest corn crops ever raised, only twice exceeded. Wheat dropped to about prewar production, while the oat crop was less than for several years, although still the second cereal in size. Barley was below the ten-year average, and rye showed a considerable decline, as did also rice. Potatoes were down to the prewar average; sweet potatoes, while less than the yield of 1920, were well above the average of previous years. The tobacco crop showed a considerable decline over recent years, and hay also.

The cotton crop was the smallest in twenty-five years. The foreign outlet for the large crop of 1920 so restricted prices that they dropped far below the cost of production, and bankers, merchants, and business men generally joined with the farmers to bring about a reduction of the acreage in 1921, resulting in a decrease of about 28 per cent. Added to this, the ravages of the boll weevil brought the probable reduction of the year's production nearly 50 per cent below that of 1920.

Exports of wheat continued heavy and also of rye and barley, but those of oats fell off greatly. The corn export was relatively large, although the amount affected but a small fraction of the total crop. The export of cotton fell off very materially.

In Europe the crops showed a steady return of agriculture in most countries, and indicated that Central Europe, especially, is emerging from its agricultural depression. The harvests of wheat and rye showed increase. In France, despite a long drouth, the wheat harvest was reported a remarkably good one, with low prices. In Germany the grain purchases were cut nearly in half. The world's cotton crop was estimated as the smallest since 1900, due to the small production of the United States and Egypt. Russia has practically ceased to grow cotton.

AGRICULTURAL DEPRESSION. The United States was passing through the most severe agricultural depression of its history. Farmers were hard hit by the slump in prices at the close of 1920. They borrowed more money, however, to keep up their operations and in the face of a continuing decline in the prices of most crops put out ample acreages in the spring of 1921. The condition as to prices continued during the year, and with the large production far in excess of domestic needs, the high freight rates, the inability of Europe to buy, and the general business conditions in the United States the situation was intensified. Wheat fell to one dollar a bushel, the lowest since 1919, while corn on the farms in the corn belt was lower than for 25 years. As the harvest season progressed, many farmers over wide sections were threatened with bank-

ruptcy, while others who had bought expensive land on contract were wiped out. Similarly, land rents, which had doubled, trebled, and even more in the prosperous years of the war, caused many renters to not only lose their labor but their savings as well.

The purchasing power of the principal farm crops was lower than ever before known, and that of the major grain crops was little more than half what it was on an average for the five prewar years, 1910-14. The farmers' wages were reduced to about the prewar level, while the wages of other people remained near the war level.

Not only were the prices abnormally low, but the cost of getting farm products from the farm to the consumer's table increased tremendously in the past three years, the freight charge nearly doubling. At the close of the year the cost of getting farm products to market was frequently greater than the amount the farmer himself received in return, and while a heavy burden on producers of grain and live stock at a distance from the primary markets, it resulted in the failure to harvest fruits and vegetables in some cases because the prices were not sufficient to pay the cost of packing and transportation.

The effect of this severe agricultural depression on business in general and on the future of the agricultural industry was viewed by students with much concern. Normally the farming classes represent nearly half the purchasing power of the country. The effect of the severe reduction in purchasing power was a no small element in the general business situation. It was pointed out that agricultural production in adequate measure cannot be continued any length of time on a basis which does not give the producer a fair price. If conditions continue under which workmen in other callings receive pay so much higher than the farmer can expect, there will be an increasing drift from the farm to industries in business, resulting eventually in prices for farm products so high that the burden will be transferred to the people in the cities. As pointed out by experts, the amount of food that will be produced upon American lands ten years hence will depend upon the number of men and women who find it profitable to remain upon the farms and the intensity with which they can afford to work the lands.

REMEDIAL MEASURES. Realization of the serious economic conditions affecting agriculture led to a great variety of suggestions for remedial measures and the taking of a number of definite steps by Congress. While it became evident that there were no short cuts by which an immediate return to prosperity could be insured, a number of laws were enacted which were expected to relieve the situation to some extent and to safeguard agriculture more largely in the future.

An emergency tariff imposing high duties, some of them well-nigh prohibitive, on the importation of about thirty farm products was passed after considerable delay. The measure was stimulated especially by the importation of wheat from Canada at prices which seriously competed with the American grown product, and by bringing in of wool, potatoes, and other staples from abroad.

In June a joint Congressional Commission of Agricultural Inquiry was authorized by Congress,

to investigate the conditions surrounding agriculture, especially with respect to prices, credits, marketing, etc., and to suggest remedies. (See below.)

Much attention was given to making credit more easily available to farmers who had borrowed heavily to keep going in the face of disastrous prices and were having difficulty in renewing their loans. The capital of the Federal Farm Loan system was increased by the deposit of \$25,000,000 of Government funds in the Farm Loan Banks, to be used as a revolving fund, and the Farm Loan Board was authorized to issue \$60,000,000 in new bonds. Earlier in the year the Board had marketed a \$40,000,000 issue of bonds, the first to be offered since the legality of the farm loan securities was favorably passed upon. The readiness with which these \$100,000,000 of bonds were taken up enabled the rapid extension of mortgage loans. The joint stock land banks were given authority to increase the interest rate on their bonds from five to five and one-half per cent.

Early in the year various measures were considered to assist in financing the exportation of agricultural and other products to foreign markets, but these finally gave way to the revival of the War Finance Corporation. Later, in August, the authority of the corporation with respect to agricultural products was enlarged and it was empowered to issue bonds to the extent of one and one-half billion dollars, using the proceeds up to one billion at any given time for advances in connection with transportation and export of agricultural products and to provide other credit for agricultural purposes. The production and marketing of live stock was included in its programme of aid. The activities of the corporation soon assumed large proportions, especially under the extension given in August. By the middle of November some \$95,000,000 had been loaned or approved, including \$44,000,000 on cotton, \$26,500,000 on grain, about \$6,000,000 on live stock, and nearly \$19,000,000 for other agricultural purposes; and additional advances were being made at the rate of from one to two million a day.

In November the corporation took up plans for warehousing corn on an extensive scale, to enable farmers to hold their grain for more active demand. This is in accordance with plans advocated by students of the subject for holding ample supplies of grain and hay in years of excessive production, to tide over lean years and thus equalize supplies. Such advocates have contended that more attention ought to be given to storage and the financing of crops in favorable years so that an unusually large production which is often a calamity to the farmers may be used to supplement short crops which are almost equally disadvantageous to the public generally.

The passage of these remedial measures and the blocking of other legislation considered disadvantageous to agriculture was vigorously pressed by a group in Congress which came to be known as the "agricultural bloc." (See also AGRICULTURAL LEGISLATION.) The activity of this group was one of the most significant agricultural events of the year. It was declared to be the most forceful group influence in Congress, making the strength of the farmer vote more apparent than it had ever been before. Representing about one-

third of the population, it overrode party lines and was credited with dictating terms to the party in power. The agricultural organizations were strongly arrayed back of the bloc and were determined that their influence should be felt. The bloc had a definite legislative programme, which it met with quite prompt success in putting through. At the close of the year its further programme included the placing of a farmer on the Federal Reserve Board, the provision of long-term personal credits for farmers, and legislation giving farmers' coöperative associations the right to buy and sell collectively without liability of prosecution under the anti-trust laws.

In his message to Congress in December, President Harding expressed concern for the condition of agriculture and the belief that "the main remedy lies in distribution and marketing." He accordingly advocated every proper encouragement to coöperative marketing. In October the Interstate Commerce Commission ordered freight rate reductions on grains, grain products, and hay in the territory between the Mississippi Valley and the Pacific coast, the new rates to be effective by November 20. Following this, many roads in other sections made similar reductions.

At the close of the year President Harding directed the Secretary of Agriculture to call a national agricultural conference to consider what corrective and constructive steps can be taken to relieve the depression in the farming industry. The conference was not to be limited to representatives of agriculture but to include all important allied industries such as packers, millers, railway and water carriers, exporters, commission merchants, etc. The conference was set for the last week in January, and a large number of invitations were sent out.

SUPERVISION AND REGULATION. There was more determined effort than ever before to find out the cause of the difference between the small price paid the farmer and vegetable grower for their products and what the ultimate consumer has to pay for them—to seek out intermediate agencies whose effect was to depress or control prices to consumers, to eliminate unnecessary links in the chain of distribution, and to remedy the handicap of the individual farmer through organization. The attempt to locate the cause of the large discrepancy in prices of products and the choking of competition in buying them was bitterly fought by large commercial interests through gross misrepresentation, personal attack, and otherwise. But the Department of Agriculture has responded to the demands of its constituents and is determined to get at the facts, as it is also to enforce such regulatory laws as have been provided.

In line with this movement, legislation was passed bringing the packers and stock yards under Government supervision, and extending Government supervision to the grain exchanges where prices so largely originate. (See **AGRICULTURAL LEGISLATION**.) Both acts are to be administered by the Federal Department of Agriculture. Their passage was vigorously contested by the interests concerned, but formed a part of the programme of the agricultural bloc in Congress.

Need for greater consideration of the economics of agriculture is strongly pressed by the Secretary of Agriculture. Agricultural efficiency consists in

intelligent production with due regard to the needs, and in placing the products advantageously before the consumer. The Secretary is pressing attention to research in marketing agricultural products, including assembling, storing, and distributing.

An investigation by the Federal Trade Commission of the grain trade, with especial reference to grain export prices paid producers, was ordered by the U. S. Senate near the close of the year.

ORGANIZATION. Efforts of the farming people to protect their economic interests, promote their welfare, and improve their general condition through organization were unusually active during the year. Organization has grown rapidly and found effective means of expressing itself. The American Farm Bureau Federation, with a membership of approximately a million, is the largest and most effective of these national organizations, and under able leadership has become a great force. It has set in motion various movements for the marketing of grain, live stock, dairy products, etc.

Among the organizations developed out of these movements is the United States Grain Growers, Inc., organized in April, 1921. It developed out of the Farmers' National Grain Marketing Committee of seventeen appointed by the Federation in 1920. It is designed to carry out the marketing plans of that committee to market grain for the farmers of the country, and so far as practicable to take this out of the hands of boards of trade, commission merchants, and grain speculators. The Grain Growers were vigorously opposed by the National Grain Dealers' Association, formed in June, which conducted an active propaganda against these coöperative efforts. But despite this, the membership of the Grain Growers grew rapidly until by the end of the year it had about 30,000 members and had signed up nearly 800 elevators. In the latter part of November, over 50,000,000 bushels of grain were reported to be under contract with members.

To finance its enterprise and furnish members with credit on stored or pooled grain, the Farmers' Financial Corporation was organized, with a capitalization of \$100,000,000. It encountered opposition from the securities commission of several States, however, and none of its preferred stock from which the capital was to be derived was offered for sale. A larger and more comprehensive organization to finance other agricultural products than grain was reported as under consideration, on a somewhat modified plan.

Within the States coöperative marketing and purchasing through the farm bureau organizations assumed rapidly increasing proportions. Some idea of the extent of these activities is shown in the article on Agricultural Extension.

Recently released Census reports show that in 1919 more than a half million farmers marketed coöperatively products valued at \$722,000,000, and over 300,000 farmers made purchases amounting to \$84,000,000 through coöperative buying associations. Grain, milk, cream, butter, fruit, and truck crops were marketed in the largest amounts by the coöperative associations. The organization of the fruit growers in California placed that State in the first rank in total value of products marketed, while the coöperative creameries and cheese factories of Minnesota were largely responsible for placing that State second, and the farmers' grain elevators helped to make Iowa rank third.

Since these figures were gathered there has been a continued increase in coöperative associations among dairy farmers, grain and live stock shippers, and the cotton growers of the South. A coöperative marketing organization of 50,000 growers of Burley tobacco, controlling 2,000,000 lbs. of the product, has been affected; and the American Farm Bureau Federation reports that 100,000 cotton planters have signed contracts for five years and plan to sell cotton through their agency.

COMMISSION OF AGRICULTURAL INQUIRY. The joint commission composed of members from the U. S. Senate and House of Representatives constituted early in June (as above mentioned), held hearings and solicited information from various sources during the summer and fall, and December 14 presented through its chairman, Representative Sydney Anderson of Minnesota, the first part of its report. This was entitled *The Agricultural Crisis and its Causes*, dealing with the actual condition of the farmer and agricultural production, the trend of agriculture, the economic conditions associated with it, etc. The report points out that normally agriculture produces about 17-18 per cent of the national income of the United States, although approximately 30 per cent of the persons gainfully employed are engaged in agriculture. The average labor income received by farmers is below that of employees in many other industries. Measured in terms of purchasing power, the farmer's reward in 1909 was \$326, in 1918 it was \$326, and in 1920, \$210. Measured by the standard of purchasing power of his products, by their absolute price compared with those of other commodities, by the test of quantity output or the test of income and rewards, the capital invested and the labor employed, the farmer in 1920 and 1921 was relatively worse off than employees in other industries. When the decline in prices came those of farm products dropped more rapidly and went to a lower level than those of other commodities, increasing the disadvantage of the farmer during the period of deflation.

As to the causes which brought about the débâcle of prices, the conclusion of the commission is that on the whole neither overproduction nor overmarketing of farm products in 1920 was in any considerable measure a moving factor in the decline of 1920-21; nor was the decline due to the falling off of exports. On the whole, exports of all grains in 1920-21 were greatly in excess of the prewar average, although cotton exports were markedly less than the average and were promptly reflected in a decline of prices. The consumption of cotton in 1920 was lower than in any year since 1915, and these two factors together largely account for the tremendous decline in cotton prices. Exports of beef and veal also declined, and the consumption of wheat, beef, mutton, and dairy products during the period of depression contributed undoubtedly to the decline in prices of these commodities. As the falling purchasing power of the world began to make itself felt in the lessening of export demand for farm products, the prices began to decline, and with them the purchasing power of the agricultural population, representing nearly 40 per cent of the total purchasing power of the country. This in turn affected the productive industries, and unemployment resulting in diminished consumption gave further impulse to the avalanche of prices.

Data are cited to show that on the whole

agricultural production in the United States has barely kept pace with consumption. Production of wheat and grains has about kept up with the increase in population, while cattle, other than beef cattle, and sheep have decreased in proportion to population. The prices received for farm products have not been such as to induce an increase in farm production on the whole. The cost of production in 1920 was far greater than the cost of any preceding crop year in the history of the country.

The number of mortgages on farm lands and buildings has more than doubled in the last ten years, greatly in excess of the increase in quantity production of farm crops, so that apparently the payment of the added interest and principal of the debt must look to increased prices. The decline in prices of agricultural products in the last twelve months has been equivalent to 53 per cent from the peak, having the effect of again doubling the farmers' debts, already doubled as compared with 1910.

The commission points out that freight rates reached their highest level during the period when agricultural products were at the lowest point in thirty years in terms of purchasing power; and it believes that an immediate reduction of freight rates on farm products is absolutely necessary to a renewal of normal agricultural operations and prosperity. (Such a reduction has been made since the report was issued.)

The commission urges the imperative necessity for the formulation of a definite programme looking to the permanent development of agriculture, with a view to relating it to the various agencies of distribution in such a way as to avoid duplication, waste, and loss in reaching the consumer. It urges the expansion of the gathering of agricultural statistics, the fixing of standards of agricultural products, the need of organization and coöperation in productive marketing and distribution, banking machinery adapted to the farmers' turnover and business requirements, and a national warehouse system which would provide uniform liability on the part of the warehouseman and fully insure the moral and financial hazards. "Only until the farmer can hold or sell his crops as his own judgment or the judgment of his coöperative association dictates can he hope to adequately control the marketing of his product and have influence in proportion to his number and importance."

Succeeding parts of the report will deal respectively with credit, transportation, and distribution and marketing.

CENSUS OF AGRICULTURE. During the year the U. S. Census Bureau made preliminary reports for the 1920 Census of farms and farm lands, tenure, etc. The number of farms on Jan. 1, 1920 (as revised August 15, 1921), was 6,448,366 an increase of 1.4 per cent in the decade. These had a total area of 955,676,545 acres, an increase of 8.7 per cent. Of this total area 506,982,301 acres were improved land. The average size of the farm was 148.2 acres, about 4 acres more than in 1910, of which 78.6 acres on an average was improved land, compared with 75.2 in 1910.

The estimated value of farm lands and buildings in 1920 was \$66,334,309,556, as compared with \$34,801,125,697 in 1910. The average value of land alone per farm in 1920 was \$8514, as com-

pared with \$4476 in 1910. The value of implements and machinery aggregated \$3,595,317,021, and of live stock \$7,996,362,496. The value of farm implements and machinery represented an increase of 184.2 per cent in ten years, and of live stock an increase of 62.4 per cent.

Of the total number of farms 60.9 per cent were operated by their owners, 1 per cent by managers, and 38.1 per cent by tenants. There has been a gradual decrease since 1900 in the proportion of farms operated by their owners and a corresponding increase in the proportion operated by tenants. Based on the total farm acreage 66.6 per cent was operated by owners, 5.6 per cent by managers, and 27.7 per cent by tenants. Of the total land operated by all farmers in 1920, 53 per cent was improved. Of the total land in farms in 1920, 910,608,420 acres were operated by white farmers, and 45,068,125 acres by colored. There was an increase of area in the case of white farmers of 9.4 per cent over 1910, and a decrease in the case of colored farmers of 3.4 per cent. The land operated by native white farmers constituted 83.7 per cent of all the farm land, and that operated by foreign born white farmers, 11.6 per cent, while colored farmers operated 4.7 per cent of the total farm acreage. The total number of foreign born white farmers was reported as 581,054, representing a decrease of 13.2 per cent in ten years. The foreign born farmers constituted 9 per cent of the total number of farmers in the country in 1920, as against 10.5 per cent in 1910. Of these 24.2 per cent were born in Germany, 10.4 per cent in Sweden, 8.9 per cent in Norway, and 8.4 per cent in Canada.

With reference to farm mortgages the Census shows that 41.3 per cent of the farms operated by their owners were mortgaged on Jan. 1, 1920, which compares with 33.6 per cent in 1910. Data were not secured for farms operated by tenants or managers. For those reporting the amount of the mortgage (less than one-third) the total debt amounted to over four billion dollars, an increase of 132.5 per cent over 1910. These mortgages represented 29.1 per cent of the value of the property, compared with 27.3 per cent in 1910.

AGRICULTURAL CONDITIONS ABROAD. Canadian farmers were reported to be producing their crops at a loss. The bumper wheat crop of 1920, as in the United States, was produced with the highest priced labor, machinery, and seed the country has ever known, resulting in heavy loss to many farmers. The prices of the bulk of farm products were nearly down to those of 1914. A grain pooling plan was under consideration but was abandoned. Through the agency of the Government, arrangements were made with the Canadian Bankers' Association to advance loans on cattle, to obviate the necessity of selling stock at sacrifice prices. The Ontario Government arranged to put into operation the credit scheme for the benefit of farmers authorized by the last session of the Provincial Legislature.

In Mexico the Department of Agriculture was planning the taking of an agricultural census in connection with the census of population.

Of special importance to British agriculture was the repeal in October of the essential features of the agricultural act passed in 1920. That act embodied the plans of the Government for a fixed agricultural policy (see AGRICULTURAL YEAR

Book, 1920), including the guaranty of minimum prices for wheat and oats, regulation of farm wages, and the control of land cultivation by the State. The repeal caused much disappointment and brought forth sharp criticism, as marking a return to the former uncertainties of farming and food supply. The price guaranty held for the 1920 crop. The farmers faced a falling market for their live stock and were reported as losing money quite generally. The cost of production was said to be more than the price obtained for crops and live stock. A marked reduction in the number of persons employed in agriculture was reported during the past ten years. Indications are that the number of agricultural laborers has decreased by about 150,000 since 1911. While the urban population increased by about 2,000,000, the population in the rural districts declined about 50,000. The Right Honorable Sir Arthur Griffith-Boscawen, M. P., was appointed Minister of Agriculture of Great Britain in the early spring in succession to Lord Lee of Fareham.

The work of restoration of agricultural lands in Belgium progressed favorably, and in France 90 per cent of the lands devastated by war were reported under cultivation. A severe drouth forced farmers to market pigs, sheep, and cattle in large numbers during the summer. Prohibition on the importation of wheat and cereals was abolished August 1. Russian agriculture was badly disorganized, with drouth in the Volga region. The indefinite land policy has created distrust and uncertainty and contributed to the decline. Crop production in lines in which the country was formerly a leader and large exporter decreased tremendously, so that in many sections famine conditions prevailed with millions facing starvation. The United States voted \$20,000,000 for relief, to be used for corn and preserved milk and for seed for planting in the spring. German farmers were granted an increase of from 50 to 65 per cent in prices of grain from the 1921 harvest contributed to the Government Grain Commission, up to the 92,000,000 bushels they were required to surrender to the commission.

The German potato crop was only 60 per cent of that of 1913. The decline in rural population which was under way in 1913 has continued, and in the interests of restoring agriculture systematic efforts were being made to increase land settlement. The Bulgarian Ministry of Agriculture was endeavoring to replace the primitive agricultural methods in use with more modern ones, using motor plows and machinery to increasing extent. The Portuguese Government adopted methods early in the year alleviating the economic crisis, one being the granting of bonuses to farmers and to aid in obtaining agricultural machines with greater facility. The reduction of the rice crop in Japan to less than the approximate annual consumption was a quite severe blow to the agriculture of the islands. A marked tendency to decline in value of farm lands in Japan has been noted as a result of the inflation of prices during the war, the depreciation of paddy fields being nearly 16 per cent and of uplands over 20 per cent.

Australia prepared for bulk storage and shipment of wheat, the elevator system being administered by the Government. A grading system similar to that in the United States and Canada was proposed. Arrangements were made

CEREAL PRODUCTION BY COUNTRIES IN 1920 AND 1921 OF WHEAT, RYE, OATS, BARLEY, AND MAIZE IN BUSHELS

(Preliminary Returns for 1921; revised figures for 1920)

	Wheat				Rye				Oats				Barley				Maize (Corn)			
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
United States.....	794,893,000	833,027,000	57,918,000	69,318,000	1,060,737,000	1,496,281,000	189,332,000	151,181,000	3,081,251,000	3,230,532,000										
Canada.....	329,435,000	263,189,000	25,800,000	11,306,000	510,093,000	530,710,000	64,253,000	63,311,000	14,220,000	14,335,000										
Argentina.....	184,268,000	214,140,000	.....	.....	47,696,000	57,113,000	11,161,000	10,279,000	230,423,000	268,686,000										
Chile.....	25,180,000	21,591,000	55,000	192,000	2,715,000	.....	5,385,000	.....	.....	1,689,000										
Uruguay.....	10,321,000	5,948,000	.....	.....	1,986,000	.....	169,000	.....	.....	.....										
Austria.....	6,452,000	5,424,000	.....	10,046,000	18,776,000	15,975,000	5,201,000	4,392,000	2,455,000	2,784,000										
Hungary.....	47,087,000	38,294,000	22,095,000	20,564,000	20,140,000	22,307,000	20,592,000	22,585,000	27,142,000	50,156,000										
Czechoslovakia.....	40,673,000	26,362,000	54,380,000	32,941,000	72,352,000	59,654,000	47,365,000	37,238,000	10,500,000	6,138,000										
Belgium.....	11,523,000	10,275,000	17,761,000	18,169,000	30,251,000	33,865,000	3,939,000	4,350,000	.....	.....										
Bulgaria.....	42,510,000	39,705,000	8,390,000	9,798,000	11,272,000	10,125,000	13,241,000	13,926,000	34,386,000	39,650,000										
Denmark.....	.....	6,944,000	.....	12,586,000	.....	47,131,000	.....	23,548,000	.....	.....										
France.....	322,767,000	236,929,000	44,494,000	34,098,000	245,209,000	299,643,000	37,806,000	38,699,000	.....	.....										
Germany.....	97,864,000	82,858,000	260,143,000	195,729,000	324,882,000	335,526,000	82,348,000	82,659,000	.....	.....										
Greece.....	11,170,000	12,194,000	3,151,000	1,351,000	4,134,000	3,996,000	6,430,000	7,028,000	7,874,000	.....										
Italy.....	188,128,000	141,337,000	5,118,000	4,593,000	37,775,000	24,223,000	10,362,000	5,870,000	94,483,000	86,609,000										
Netherlands.....	8,686,000	5,766,000	16,646,000	14,245,000	21,289,000	22,186,000	3,651,000	2,743,000	.....	.....										
Norway.....	941,000	999,000	.....	966,000	12,742,000	15,078,000	4,310,000	5,382,000	.....	.....										
Poland.....	35,280,000	25,610,000	132,833,000	73,659,000	141,378,000	111,480,000	50,700,000	39,309,000	.....	.....										
Portugal.....	.....	7,140,000	.....	2,959,000	5,154,000	.....	.....	1,458,000	.....	.....										
Roumania.....	97,186,000	70,349,000	10,551,000	11,169,000	69,372,000	54,342,000	64,952,000	63,203,000	.....	.....										
Russia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....										
Spain.....	143,205,000	138,610,000	27,798,000	27,830,000	40,035,000	37,772,000	94,487,000	90,463,000	28,048,000	27,692,000										
Sweden.....	12,566,000	10,545,000	28,502,000	23,070,000	67,013,000	70,600,000	11,809,000	11,012,000	.....	.....										
Switzerland.....	3,574,000	3,594,000	1,559,000	1,622,000	3,036,000	3,114,000	620,000	514,000	218,000	280,000										
Turkey.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....										
United Kingdom.....	56,898,000	56,898,000	.....	.....	.....	220,579,000	.....	68,435,000	.....	.....										
British India.....	250,469,000	377,888,000	.....	.....	.....	.....	.....	149,380,000	.....	.....										
Japan.....	27,847,000	28,288,000	.....	.....	12,084,000	11,162,000	89,898,000	92,140,000	.....	.....										
Algeria.....	33,142,000	8,562,000	.....	.....	11,412,000	4,960,000	50,491,000	9,425,000	358,000	279,000										
Egypt.....	37,012,000	31,708,000	.....	.....	.....	.....	11,371,000	10,449,000	.....	.....										
Tunisia.....	11,758,000	5,225,000	.....	.....	5,167,000	4,606,000	11,482,000	2,622,000	315,000	197,000										
Australia.....	146,606,000	45,884,000	.....	.....	.....	.....	.....	.....	.....	.....										
New Zealand.....	6,674,000	4,560,000	.....	.....	6,287,000	.....	1,370,000	.....	.....	.....										
Union of South Africa.....	8,113,000	5,129,000	.....	.....	7,789,000	.....	1,137,000	.....	.....	.....										

to finance the wheat pool, the Government advancing farmers three shillings per bushel on delivery to railways. The Argentine live stock industry was reported in the most serious condition in its history, due to the slump in foreign demand, depreciation in value of grazing lands, and threatened loss of herds through insufficient pasturage.

STATE AGRICULTURAL DEPARTMENTS AND BOARDS. New State Departments of Agriculture were provided in Michigan, Montana and Missouri. In the latter State a large number of boards dealing with agricultural matters, including the board of agriculture, are consolidated under the new department. In Ohio a director of agriculture, appointed by the Governor, was placed in charge of the Department of Agriculture, heretofore under the control of the State Board of Agriculture. The latter was retained but with only advisory powers.

A board of agriculture was provided by a new law in Indiana, to include the dean of the College of Agriculture.

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See also **HORTICULTURE, FERTILIZERS, SOILS, LIVE STOCK, DAIRYING, and SPECIFIC CROPS.**

AGRICULTURE, UNITED STATES DEPARTMENT OF. On March 4, 1921, Henry Cantwell Wallace, of Des Moines, Iowa, editor and publisher of *Wallace's Farmer*, succeeded Edwin Thomas Meredith as Secretary of Agriculture. In October the Assistant Secretary, Dr. E. D. Ball, resigned to become Director of Scientific Work and was succeeded by C. W. Pugsley, editor of the *Nebraska Farmer*, who will have general charge of the publications and extension work of the Department. Carl Alsberg, Chief of the Bureau of Chemistry, and George Livingston, Chief of the Bureau of Markets, resigned. Henry C. Taylor, Chief of the Office of Farm Management, was made Chief of the combined Bureau of Markets and Crop Estimates.

In his annual report for 1921 Secretary Wallace dealt largely with the economic problems which were prominent because of the peculiar agricultural conditions of the year (See **AGRICULTURE**.)

An economic council consisting of the heads of five bureaus considered the economic work of the Department. Its report was submitted to several highly qualified men from different parts of the country. In this way plans were made for the consolidation of the Bureau of Crop Estimates and Bureau of Markets with the Office of Farm Management, the combination to be called the Bureau of Agricultural Economics if Congress approves that name.

The Department should make comprehensive studies relating to the business management of

the farm and the distribution of its products to the consumers. Such studies are vitally connected with those relating to agricultural production. The character of varieties, their liabilities to attack by diseases or insects, their qualities for storage, transportation and use, the standards for grading them are factors determining their market value. Therefore agronomic, biological, and physical research must go hand in hand with economic studies. Looking to the future there is great need of basic research in agricultural economics. The problems of land utilization will soon become very pressing as our population increases. A committee on land utilization has therefore been formed in the Department. The fundamental character and breadth of the research work of the Department was pointed out and illustrations of its important investigations were given. To coördinate this work and bring it into closer relations with similar work conducted by the state experiment stations and other agencies, Congress authorized the appointment of a Director of Scientific Work. To carry out this policy most efficiently increased federal appropriations for the experiment stations were advocated. The work of the Department in preparing subject-matter and illustrative material for teachers of agriculture and in making investigations in home economics was commended.

The Department's work in the administration of laws is large and has recently been materially broadened. Among these laws there are the pure food and drug act, meat inspection, quarantine acts dealing with live stock and plants, control of serums, toxins, and insecticides, protection of national forests, game animals, and migratory birds, enforcement of grain and cotton standards, the Federal Warehouse law, the act prescribing standard containers for fruits and vegetables, the Federal road act, the packers and stockyards act, and the future trading act. These acts require the coöperation of scientists in many fields of agricultural research and stimulate research on problems disclosed in their administration. A special unit has been formed in the Department for the administration of the packers and stockyards act. Arrangements are being made for studies of the operation and effects of future trading in grains and in this way it is hoped to get a good understanding of the actual status of such trading. The great breadth of the Department's extension work in coöperation with the agricultural colleges and other agencies was shown and the desirability of a more unified programme to reach the men, women, and children on the farms was suggested. More attention to a national programme of agricultural progress was also advocated. The service work done through crop reporting, weather forecasts, market news, certification of the wholesomeness of meats, fruits, and vegetables, etc., benefits the public generally.

The steady progress being made in the warfare against plant and animal diseases and pests is based on thorough scientific research and demonstrates the importance of adequate financial support for such research and for well-organized eradication campaigns.

During the fiscal year ended June 30, 1921, 7469 miles of roads were completed under the Federal Road Aid Act and at the end of the year 17,977 miles were under construction. The New Road Act passed by Congress in the fall

of 1921 was believed to be the most constructive road legislation enacted in the United States. It provides for interstate and intercounty roads, for road maintenance and for research on problems of road construction.

The policy of the Department in the management of the 156,000,000 acres of national forests contemplates (1) their greatest possible utilization and at the same time the greatest possible growth of timber; (2) their extension through purchase of lands to protect the watersheds of navigable streams; (3) scientific research regarding growth of timber crops, prevention of waste, utilization of products, and economic problems underlying a national forest policy; and (4) dissemination of information and cooperation with States and timberland owners and farmers in the protection and management of public and private forests and farm woodlots. The Secretary stoutly maintained that forestry is a distinctly agricultural business and that the work of various bureaus of the Department is needed to solve its problems. The work of the Department in Alaska was shown to be of exactly the same kind as that for the States and Territories, involving the activities of a number of bureaus. Plans for the utilization of the Tongass National Forest in Alaska for pulpwood for paper-making resulted in the beginning of this industry there with prospects of large development.

The need of more adequate salaries for administrative and scientific officers of the Department was emphasized. To give advanced training to subordinates in the scientific service graduate courses in several lines out of official hours were inaugurated in the Department.

The regular appropriations for the Department for the year ending June 30, 1922, amounted to \$36,404,259, an increase of \$4,491,475 as compared with those for 1921, including \$2,000,000 for loans to farmers in drought-stricken regions and \$1,000,000 for purchase of forests. Under permanent appropriation acts the Department controls the expenditure of additional amounts, including the road fund of over \$100,000,000; the extension fund of \$4,080,000; and the meat inspection fund of \$3,000,000. The allotment for hog cholera prevention was \$510,000 and for tuberculosis eradication \$1,978,800. For combating the European corn-borer \$275,000 was appropriated, for combating the pink bollworm of cotton \$554,840, and for the gipsy and browntail moth campaign \$400,000.

The appropriations for the Forest Service aggregated \$6,499,302, which was offset by \$4,793,482 of receipts from lumber sales and grazing leases in the National Forests in 1920. The appropriations for the Bureau of Plant Industry were increased from \$3,004,394 to \$3,147,770; Bureau of Animal Industry from \$5,477,156 to \$6,070,576; combined Bureau of Markets and Crop Estimates from \$2,857,365 to \$3,004,444; Weather Bureau from \$1,876,550 to \$1,886,570; Office of Farm Management from \$375,890 to \$414,830. Reductions were made for the Bureau of Chemistry from \$1,333,591 to \$1,300,251; and Bureau of Soils from \$542,215 to \$393,615. The Division of Publications was granted \$382,810, exclusive of \$725,000 for printing and binding carried in the Sundry Civil Appropriation Act.

AICARD, JEAN F. V. French poet and play-

wright, died May 13. He was born at Toulon in 1848 and published a drama in 1867. From 1870 on he published volumes of verse at intervals and two of them were crowned by the Academy in 1874 and 1876. He wrote after 1903 a series of plays of which the most popular is *Le Père Lebonnard* (1890). The list of his principal works with dates is as follows: *Au clair de la lune* (1870); *Les rébellions et les apaisements* (1871); *Poèmes de Provence* (1874), and *La chanson de l'enfant* (1876); *Miette et Noré* (1880); *Lamartine* (1883); *Jésus* (1896, 1912); *Tata* (1901, 1910); *L'ame d'un enfant* (1903); *Légende du cœur* (1903); *Benjamine* (1906); *L'illustre Maurin* (1908); *Maurin des Maures* (1908). In 1913 he published *Hollande and Algérie*.

AIRCRAFT. See AERONAUTICS and NAVAL PROGRESS.

AIRPLANE. See AERONAUTICS.

AIRSHIPS. See AERONAUTICS.

AKIMOV, ALEXANDER. See MUSIC, Artists, Vocalists.

ALABAMA, POPULATION. According to the report of the census of 1920, there were 2,348,174 residents in the State, Jan. 1, 1920, as compared with 2,138,093 in 1910.

AGRICULTURE. The following table is compiled from estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	4,042,000	62,661,000	\$38,844,000
	1920	3,593,000	56,410,000	55,282,000
Oats.....	1921	308,000	6,776,000	4,404,000
	1920	246,000	4,428,000	3,897,000
Wheat.....	1921	20,000	210,000	321,000
	1920	20,000	192,000	442,000
Tobacco.....	1921	2,000	1,500,000	390,000
	1920	2,000	1,400,000	770,000
Hay.....	1921	861,000	801,000	12,380,000
	1920	789,000	682,000	13,287,000
Cotton.....	1921	2,352,300	635,000	50,800,000
	1920	2,858,000	663,000	49,702,000
Peanuts.....	1921	330,000	181,500,000	5,082,000
	1920	324,000	183,700,000	6,430,000
Sor. syrup.....	1921	90,000	7,650,000	3,213,000
	1920	77,000	7,029,000	6,326,000
Sugar cane.....	1921	71,000	8,760,000	.....
	1920	55,000	7,665,000	.....

1 Pounds. 2 Tons. 3 Bales. 4 Gallons.

EDUCATION. The school population between the ages of seven and twenty-one according to the school census of 1920 was 772,276, an increase of 8 per cent over the census of 1910. The whites numbered 465,381, an increase of 19 per cent; the colored 306,895, a decrease of 5 per cent. The enrollment for 1919-20 in the elementary schools was 367,645, white, and 166,753 colored; an increase of 238,720, white, and 102,757, colored. The teachers in the public schools numbered 9888, white and 2670, colored, and the average annual salary paid was \$723, white male teachers, and \$494, white female teachers; \$253 colored male teachers, and \$212, colored female teachers.

LEGISLATION. An extraordinary session of the Alabama legislature was held beginning October 4 and continuing until October 30. Gov. Thos. E. Kilby specified eighteen subjects for action in his call and most of them were enacted into law. Among the more important acts were the submission of three constitutional amendments upon which the people of the State were to vote Jan. 30, 1922. One provided for issuance of \$25,000,000 bonds for highway improvement, another for the exemp-

tion of ex-soldiers in the World War from the payment of poll tax for two years and a third permitted the State to lend its credit to the improvement of the port of Mobile. The first two of these amendments were passed upon favorably by the voters but were declared unconstitutional by the supreme court because of a faulty enactment by a previous session of the legislature. The legislature passed much more drastic laws regarding picketing and boycotting, this having been brought on as a result of the miners' strike of 1920. A law was also enacted in this connection making unincorporated associations responsible for their acts. This was directed at labor unions, against which heretofore causes of action could not be brought because they were not incorporated. These measures were fought vigorously by organized labor. Among the measures recommended by the governor which failed of passage were: Permitting the manufacture and sale of cereal beverages, stricter Sunday observance and directing the supreme court to pass upon the constitutionality of laws suggested by the governor before their enactment.

HISTORY. The strike of coal miners in Alabama which began in September, 1920, was called off Feb. 22, 1921, after one of the most bitter industrial conflicts in the State's history. The miners were defeated and the mines of the State continued to operate on an open-shop basis. The National Guard of the State was on duty in the strike zone for nearly five months. It was estimated that the expenditures of the United Mine Workers of America in the effort to unionize Alabama amounted to approximately \$3,500,000. During the week of October 24 Birmingham celebrated the semi-centennial of its history. On October 26 President Warren G. Harding and Mrs. Harding were guests of the city to participate in the celebration. The entire week was made notable by a series of events upon which much money and effort were spent. One feature was the bringing of the most beautiful girl from each of Alabama's sixty-seven counties as queen of her county. From these in turn was selected the queen of the semi-centennial. Pageants, parades, fêtes, and expositions were arranged for each day of the week. Upon his trip to the city President Harding was accompanied by the Secretary of War, the Secretary of the Interior and Senator Underwood. During the latter part of the year new hope was infused in the Muscle Shoals (q. v.) project by the offer of Henry Ford, the automobile manufacturer, to take over and develop the electric power plant and nitrate plants built by the government. The negotiations were still under way at the close of the year. Work was completed to raise the height of the dams on the Warrior river so that a navigation depth of eight feet is now assured the entire year from Mobile to the Birmingham district. The Alabama Power company began work on its new dam at Duncan's Riffle on the Coosa river which will develop 120 thousand horsepower in addition to that now available. The company also put into service another unit of the Lock 12 power plant on the Coosa adding 20,000 horsepower. Demand for power became so great that the company leased from the government the emergency war steam plant at Muscle Shoals which develops 90,000 horsepower. This lease, however, may be terminated by the government upon sixty days' notice.

A notable feature of water power development

during the year was the hitching up of Alabama power lines with those of Georgia between Gadsden, Ala., and Rome, Ga. By this connection Alabama rivers supplied power for the mills of North and South Carolina during low-water periods in those States. When the rivers are low in Alabama power from the Carolinas is brought into the State. At Anniston, Ala., the manufacture of high-grade phosphoric acid by use of electric power was developed on an extensive commercial scale. With the completion of the fourteenth steel ship at the plant of the Chickasaw Shipbuilding and Car company at Mobile the plant built chiefly to meet war needs was closed. This company's activities were centred on the construction of steel freight cars at the Fairfield plant.

OFFICERS. Governor, Thomas E. Kilby; Lieutenant-Governor, Nathan L. Miller; Secretary of State, William P. Cobb; Auditor, H. F. Lee; Treasurer, R. L. Bradley; Attorney-General, Harwell Davis; Commissioner of Agriculture and Industries, M. C. Allgood; Superintendent of Education, John W. Abercrombie; President, Public Utilities Commission, A. G. Patterson.

ALABAMA, UNIVERSITY OF. A State institution for the higher learning situated at University, Ala.; founded in 1831. The enrollment for the fall 1921 was 1650 and for the summer session of 1920, 1300. There were 75 members in the faculty in the fall of 1921 of whom 15 had been added in the course of the year. The productive funds exclusive of State support were \$1,025,000 and the total income was \$285,000. The library contained 50,000 volumes. President, George H. Denny, Ph.D., LL.D.

ALAMEDA COUNTY, CAL. See MUNICIPAL GOVERNMENT.

ALASKA. War and economic conditions have paralyzed the development of this Territory of vast resources and potential wealth. The year 1921 discloses decrease of population, increase of taxes, closing of mines, deficiency of transportation, unsatisfactory mail service, and stagnation of business. The spending of fifty millions of Federal funds to build a railway connecting Tanana valley with the ocean has failed as yet materially to improve affairs. In part these conditions are due to the uncoordinated methods of thirty-eight Federal bureaus. The late Secretary Lane officially pointed out that in unopposed cases it had taken from three to ten years to obtain a town site; once it took nine years and \$700 to secure a homestead, and nine years for a manufacturing site. To correct these delays under executive authority the Federal affairs of Alaska have been intrusted for administration to an inter-departmental committee (1920). By its action matters have improved, and certain powers have been given to local officials, by the establishment of Federal offices at Juneau where they are in touch with the governor and the legislature.

Meanwhile, recognizing the inefficiency of governmental control and to facilitate development, Mr. C. F. Curry, Chairman of Committee on Territories, House Reports introduced bill H. R. 5695 to coordinate such Federal activities as relate to the natural resources and public utilities of Alaska and administered by Federal bureaus. An extended public hearing was held, which is printed in a report of 666 pages, the most complete Alaskan information ever collected in a single volume.

Urgent need of action on this bill is unquestionable, but the subject is non-political and its fate is uncertain.

POPULATION. The official bulletins of the Census Bureau give for 1920 full information as to the numbers, occupations, industries, etc., of the inhabitants of Alaska. The population then numbered 54,899, a decrease of 9457 since 1910. This was due largely to the conspicuous war service of its men, who volunteered in larger proportion than in any State, and in part to the unproductivity of many mines which increased costs of operation temporarily closed. While the southeastern or "panhandle" district had an increase of 2186, the interior district—upper Yukon and Tanana valleys—had the largest decrease, 6198. The Chinese, Japanese, and negroes were nearly eliminated, being reduced 1835 or 79 per cent. The mining towns lost most heavily: Nome, 1748 or 67 per cent; Fairbanks, 2388 or 67 per cent; Douglas, 803 or 47 per cent. The whites, 27,863, are now barely one-half the population, and while they outnumber the natives in the panhandle district, reverse conditions obtain along the coasts of Bering sea and of the Arctic ocean. The illiteracy of whites is unusually low, being 1.9 per cent for those over ten years, and for the native born whites is but 0.6 per cent.

NATIVE POPULATION. A surprising feature is the increase of the natives from 25,331 in 1910 to 27,883 in 1920. By linguistic stock they were: Eskimauian, 13,698; Athapaskan, 4657; Tlingit, 3895; Aleut, 2942; Tsimshian, 842; Haidan, 524; not reported by stock, 1640. Two-thirds of the natives speak English. Their improvement in education is evidenced by the reduction of illiterates from 71.4 per cent to 56.4, and among those from 10 to 25 years of age from 50 to 35 per cent. Gainful occupations are followed by 47 per cent, over 10 years, 6288 in all. The principal vocations are: Hunters, guides, etc., 2818; fisheries, 2204; reindeer herders, etc., 451; lumbering, 161; mining, 148. In professional or skilled occupations are clergyman, teachers, electricians, stationary and technical engineers, and carpenters. Among the women are bookkeepers, clerks, dressmakers, and trained nurses; despite years of domestic schooling they appear to avoid domestic service in white families, as there were only eighty-eight servants, waitresses, and laundresses. The reindeer being largely in the hands of natives have materially raised the Eskimo in standing. The herding, training, and care of 100,000 deer, which have been done with profit, were important factors in changing these natives from a migratory race of hunters to the more important stage of shepherds. The self-helpfulness of the Eskimo as a people was strikingly shown by the adoption of 250 orphans, whose parents perished through the influenza epidemic, in the regions bordering the Arctic ocean and the north Bering sea.

GOVERNMENT RAILROAD. When completed this line will connect Seward, Kenai peninsula, and Chatinika, Tanana valley, via Anchorage, Broad Pass, Nenana, and Fairbanks with a branch line into the Matanuska coal fields. During 1921 there were 44 miles of track laid, leaving 71 miles yet to be built over which right of way and grading so progressed that it was expected to be ready for track on Jan. 1, 1922. Work was

facilitated by the purchase of the Alaskan Northern railroad, from Seward to near Anchorage, at a cost of \$1,154,188, and of the Tanana Valley road,—Chena to Chatinika: both roads had to be rebuilt. The cost per mile of constructed road has been \$67,630 per mile, exclusive of rolling-stock. The cost of the railroad, fixed by Congress at \$35,000,000, was later raised to \$52,000,000. Supplementary funds and material raised the available amount to \$52,450,169, of which there remained June 30, 1921, unobligated \$3,727,325. In developing coal mines in the Matanuska region, and securing needed coal, there was spent \$1,130,242. For the 6 months ending April 30, 1921—latest data—there were carried nearly 13,000 revenue passengers, and 13,000 tons of commercial freight. Official reports indicate that the road must be operated for years without its revenues equaling the running expenses, with twice-a-week mixed trains each way—the economical method. A total of 545 miles of railroad in operation with train service twice a week in each direction, though at two river crossings temporary arrangements were used. At Riley Creek, Mile 347, a steel viaduct was to be built. The steel for this viaduct has been shipped and it was expected to have the bridge erected by the first of February. This would complete the line with the exception of a permanent crossing of the Tanana river at Nenana, about 35 miles from Fairbanks, the northern terminus now reached by through line from Seward and Anchorage. The appropriation granted by Congress for work of the Alaskan Engineering Commission for the fiscal year 1921-22 was principally to take care of this bridge. The crossing at the end of 1921 was made by means of a ferry in the summer time, and by extending a narrow-gage track over the ice in the winter time. When the bridge is built, the gage of the track from North Nenana to Fairbanks, a distance of 85 miles, will be standardized and a through line to that place secured.

ROADS AND TRAILS. Roads to serve as feeders to the railroad and to develop mining districts are of extreme importance. This system is under the Alaska Road Commission, three army officers, which administers funds appropriated by Congress, allotments from the Alaska Fund, and appropriation by the Territorial Legislature; to June 30, 1921, it had spent six million dollars. It had built to date approximately 5000 miles of wagon roads, sled roads, and trails, beside many bridges, ferries, and tramways. This year it initiated a 10-year programme for the systematic development of territorial roads. The legislature of 1921 appropriated \$25,000 for a bridge across the Nizina river, and authorized negotiation for the purchase of the Seward Peninsula (Nome) railroad, to be operated as a public tram and highway.

MAILS. This service continues to be inefficient and unsatisfactory, due partly to lack of funds and in part to existing transportation facilities.

MINERALS. Complete data are available for 1920 only. High operating costs and low prices for minerals have seriously affected mining. The largest decrease has been in gold placers. Cheaper transportation and less costly fuel are essential to future general improvement. However, promising auriferous lodes in the McKinley district—upper Kuskokwim valley; in the Susitna valley; in the Sitka district; the enactment of the

oil-leasing law; and the systematic exploration of the Matanuska and the Bering coal fields should ensure future profitable productivity. The total mineral output from 1800 to 1921, is \$478,000,000, of which 328 millions were gold and 134 millions in copper.

The Alaskan expert, A. H. Brooks, in his preliminary estimate for 1921, places the yearly product of minerals at \$16,109,000, the lowest annual yield since 1904. The principal values are: Gold, \$8,000,000; copper, \$6,971,000; coal, \$480,000; silver, \$466,000, and lead \$46,000.

Gold. The main features for 1920 were a decrease in placer output, and an increase in that from lode mines. The annual product was \$8,635,560 against \$9,426,023 in 1919. The increase of \$81,450 from 17 gold-lode mines was more than offset by a loss of \$1,097,000 in the 488 placer diggings, principally in the Yukon camps. The maximum gold output was in 1906, \$22,636,794, since which year the annual output has decreased with few unimportant increases. The gold-lode mines of the districts of Sitka and Willow Creek are most favorable for coming years.

Silver, a by-product of gold and copper ores, increased in value from \$705,273 in 1919, to \$1,097,000 in 1920, making it the maximum annual output. This increase was largely due to the galena ores of the Kantishna district.

Copper. Copper assumed an important place in 1915, rising from a value of \$2,852,934 the previous year to \$15,139,129. It touched its maximum of \$29,484,291 in 1916, fell to \$8,783,063 in 1919, and rose to 70,436,363 pounds, valued at \$12,960,106 in 1920. This last increase came almost entirely from the Bonanza, Jumbo and Mother Lode mine, Chitina, and from the Beeson mine in Prince William Sound.

Lead. The production of 687 tons, valued at \$72,822 in 1919, rose to 875 tons, and \$140,000 in 1920, the maximum tonnage of any year. Largely a by-product of the gold ores of the Juneau district, its late increase is mainly due to the Kantishna galena ores.

Tin. This metal has fallen steadily from the maximum of 100 tons, value \$123,300, in 1917, to 16 tons, \$16,112 in 1920.

Platinum metals. The output of 569 ounces, value \$73,633, in 1919, increased in 1920 to 1,477 ounces, value \$160,117. The larger part came from the Salt Chuck mine, Ketchikan district.

Miscellaneous. In 1920 quicksilver was mined in small amount, as also stibnite (antimony). Tungsten and molybdenite mining mines are closed.

Coal. The blighting effect of the restrictive legislation of 8 years ago are evidenced in the coal development. Only one mine has so far been systematically explored by private capital,—in the Bering river field. From 1915 to 1920 there were imported into this great coal-bearing Territory 566,784 tons of coal, of which 271,876 were from British Columbia. With the help of, and at the expense of the United States government the Alaskan output reached its maximum of 75,606 tons in 1918; the imports for 1920 were 82,307 tons. Of the total product of 61,111 tons in 1920, no less than 35,044 tons came from the two government mines in the Matanuska district, where the federal cost of mining has risen from \$4.66 in 1918 to about \$6, in 1920. The Eska and Chickaloon owners failing, their properties were taken over

and operated by the Alaskan Engineering Commission, which has spent in this field \$1,130,242. The development of high-grade deposits is still in the prospecting stage, and the coal actually blocked out scarcely reaches half a million tons. For low-grade coal there have been better results. The Healy River company, under lease, has developed and is exploiting a lignite superior to any previously known in the Nenana district. Its output of 9450 long tons in the past fiscal year found ready market in adjacent towns and for railways uses.

Petroleum. Over three hundred millions of gallons of oil were imported by Alaska from 1906-20. The only petroleum produced in 1920 was from the single (Chilkat) field, Katalla district, patented before the withdrawal of oil lands in 1910. Ten years later, February, 1920, was enacted the oil-leasing law, under which 494 applications have been filed, covering 1,100,553 acres, forecasting some action in 1922.

FISHERIES. These industries continue to be the most productive of Alaskan enterprises. It is a matter of regret that the output of 1920,—the latest date available,—as compared with that of 1919 shows reductions in investment, personnel, and values. The investments dropped from \$74,181,560 to \$70,986,221; the personnel from 28,534 to 27,482; and the values from \$50,282,064 to \$41,492,124; the falling off being principally in the salmon catch in southeastern Alaska. Possibly the decreases were hardly larger than those experienced in business in the States. The 1920 values were: salmon, \$36,635,836; halibut, \$1,726,798; herring, \$1,303,614; cod, \$1,117,464; whales, \$562,299; clams, shrimps, crabs, trout, etc., \$163,772.

Salmon Industry. The salmon is the most valuable of all Alaskan products, surpassing both the minerals and the fur-seal. As was expected there was a marked decrease in 1920; the falling off of 894,249 cases (48 1-lb cans to a case) in southeastern Alaska being somewhat offset by increases of 565,541 in central and of 174,483 cases in western waters. Over 96 per cent of this fish was put up at 146 canneries, an increase of 12 over 1919, by a personnel of 24,423, of whom 25 lost their lives in the work. The pack of 1920 amounted to 4,429,463 cases, valued at \$35,602,800 as against 4,583,688 cases in 1919, of a value of \$43,269,349. It is the smallest catch since 1914; the maximum pack was that of 1918, 6,605,835 cases. As compared with the previous year the catch of 1920 was as follows: cohos (silver), 192,085 cases, a decrease of 40,785; chums (keta), 1,033,517 cases, a decrease of 332,046; humpbacks (pink), 1,593,120 cases, a decrease of 18,488; king (spring), 110,003 cases, an increase of 14,017; and sockeye (reds), 1,500,738 cases, an increase of 223,077.

The condition of the salmon fisheries in 1920 was such as to cause grave concern, over-exploitation being feared and their future prosperity threatened. Over-fishing, predatory enemies, and interference with spawning seriously affected propagation and conservation. The whole problem,—of vast importance to the future of Alaska,—is being systematically studied under Dr. H. M. Smith, United States Fish Commissioner, himself an expert. The wholesale destruction of various species of trout,—predatory on the salmon,—has been initiated with success. The development of

hatcheries and investigation of spawning methods are in progress.

A most important step has been taken in the limitation of commercial fishing grounds, while leaving free the local population for their home supply. Besides affecting future commercial success, the resident population were intimately concerned. The commercial exploitation of salmon in the Copper, Kuskokwim, and Yukon watersheds threatened seriously the life and activities of the settlers, white and native alike. Winter transportation depends almost entirely on dog teams, and dried salmon is the only food for dogs that is cheap and portable. This is no small item, as for local use over 700 tons of dried salmon was put up in 1920 in the Yukon watershed alone. After due public hearings the Secretary of Commerce, under authority of section 6, Act of Congress of June 26, 1906, further limited commercial fishing. From Sept. 1, 1921, salmon fishing was prohibited in the Copper, Kuskokwim, and Yukon waters, and within 500 yards of the deltas.

As might be expected salmon canneries suffer from trap robberies on the one hand, and some of them are at times guilty of violating the federal and Territorial laws. Although there has been increased vigilance on the part of the federal vessels,—of the Fishery Commission, the Navy, the Coast Guard and Coast Survey,—to remedy these evils, yet the enormous areas to be watched cannot be well guarded. The territorial fish commission has been active, and the Territory received \$250,000 under its tax laws, which the Supreme Court has upheld.

Halibut. Caught on the high seas, only such fish are credited as were landed at Alaskan ports. The production of 1920 was 15,295,500 pounds, value \$1,726,798 against 14,278,791, value \$1,550,605 in 1919.

Herring. The value of this branch of fishery fell from \$1,676,170 in 1919 to \$1,303,604 in 1920. The largest item, \$490,485, was for herring pickled after the Scotch method.

Cod. Despite active Japanese competition, which threatens the future of this industry, the cod catch of 1920 was 12,763,899 pounds, valued at \$1,117,464 an increase over the previous year of 1,870,587 pounds, \$291,474.

Whales. Four companies only continue the whale-fishery. They took in 1920, 665 whales of six kinds, as against 580 the preceding season. The values however fell off from \$1,027,200 in 1919 to \$562,302 in 1920.

Miscellaneous. There were no material changes in the value of clams, crabs, sable-fish and trout over 1919. Shrimps, however, were valued at \$49,123, more than double that of the previous year.

Pribilof Islands and Fur Seal. The report of the United States Commissioner of Fisheries sets forth the constant improvement of the 336 natives as to their health, education, housing, and living conditions. They profit financially from the reindeer, fox-trapping, and seal-catch.

The seal herds in 1912 numbered only 215,738 animals. With the present much larger numbers their rate of increase falls off. It is about 6.5 per cent annually, excluding the annual slaughter, about 25,000 seals. By the census in recent years there were: 1917, 468,692 seals; 1918, 496,692; 1919, 524,235; 1920, 552,718; and approximately in 1921, 587,820. Improved methods of taking pelts and preparing them for market have been intro-

duced. In late years there have been taken: 1919, 25,381 pelts; 1920, 25,978; and 1921, 22,546. In addition there were taken by natives on the open sea 1287 pelts, while Japan turned over to the United States ten per cent of pelts (56) taken by their officials on Robben Island. The price of pelts dressed, dyed, and machined steadily decreases. In May, 1920, they brought an average of \$140.97, in May, 1921, \$73.74, and in September, 1921, \$32,099. On Jan. 1, 1921, there were on hand 61,198 seal-skins.

The fox farming of the islands has been most successful. The catch of 1921 is the largest made, numbering 1621 animals, of whom there were released for breeding 242 blue males and 240 blue females. Of those killed there were 1125 blue and 14 white animals. The perfection of breeding has been reached on St George Island, where there was but one white fox out of 1483 animals. In the sales of September, 1921, the blue skins averaged \$96.83 in value, about 20 per cent above the prices obtained in the auction of the preceding May.

REINDEER. The 1280 deer imported by the United States have increased to about 216,000 animals. Meantime about 100,000 have been killed for food. The estimated value of the herds on June 20, 1921, is six million dollars. In ownership they are distributed thus in percentages: United States, 3; missions, 3; Lapps, 2; corporations, 22; and natives, 70. The Loman Company is engaged in the reindeer industry, and ships to the States as many carcasses each year as transportation cold-storage facilities permit. The 30 deer sent to the Aleutian islands have increased to more than 200, and the herd on the Pribilof islands from 40 to 317. Active measures are in progress to free the deer from harmful parasites, and to increase their strain of stock.

AGRICULTURE. In the interior valleys all kinds of hardy vegetables are now raised, as well as grains. The Fairbanks valley produced in 1919 about 4000 bushels of various grains, and the establishment there of a flouring mill ensures that in future local needs for flour will be met. Lack of large local markets is the drawback. Five experimental stations are in operation under the U. S. Department of Agriculture: at Sitka attention is given to vegetables and fruits; at Kodiak to stock-raising; at Matanuska to diversified farming; and at Fairbanks and Rampart to specialization in grains. Barley, oats, rye, and wheat are acclimated and mature every summer. Twenty-two kinds of wild grass grow in such profusion as to ensure the development of a profitable dairy and stock-raising industry, especially on the Kenai peninsula and in adjacent regions.

FINANCE. The amount received by the United States for licenses dropped from \$200,000 in 1920 to \$181,000 in 1921. The territorial receipts for 1920 were \$572,000; disbursements, \$670,000; remaining treasury balance, \$316,000; these receipts are distributed in percentages: To roads and trails, 65; schools outside incorporated towns, 25; indigents, 10. The 15 territorial banks had deposits in 1920 of \$6,354,000 against \$6,620,000 the previous year; the 2 national banks on June 30, 1921, with capital of \$100,000 had surplus of \$104,000, and deposits of \$1,464,000.

TERRITORIAL LEGISLATION. At its biennial session of 1921 the legislature appropriated \$25,000 for a bridge across the Nizina river, and au-

thorized negotiations for the purchase of the Seward (Nome) Peninsula railroad, with a view to its maintenance by the Territory as a public tram and highway. Other important laws enacted were: regulating banks and trust companies; laborer's liens on lumber, oil, and gas industries; live stock inspections; operation of coal-mines; establishment of Agricultural College; on narcotic drugs; fees and taxes of corporations; system of license taxation on business professions, fur-farming, etc.

SCHOOLS. For white and mixed blood children there were maintained at territorial expense fifty-eight schools. An act provides for the active operation in 1922 of an agricultural and mining institution, which will be the first college in the Territory.

NATIVE SCHOOLS. The education, medical care and relief of the natives are administered by a special field force of the U. S. Bureau of Education. This Alaskan branch consists of 6 supervisors, 9 physicians, 13 nurses, and 133 teachers. Hospitals are maintained at Kanakanak, Juneau, Nulato, and Kotesbue. The influenza epidemic brought several thousands under medical care. In the 67 schools there were taught to over 3600 pupils English, domestic science, and the simpler forms of industrial arts. The beneficial results of this training appears in the marked advance in literacy, the formation and successful operation of coöperative stores, and the establishment of separate villages entirely under native control. Honest, law-abiding, industrious and generally temperate the natives are becoming more and more helpful factors in the development of the Territory.

PUBLIC LANDS. Townships covering 100,000 acres were approved in the fiscal year 1921; also 92 mineral surveys, 13 forest homestead surveys, and 6 miscellaneous.

FOREST SERVICE. This bureau steadily increases in the value and extent of its Alaskan work. Its annual sales of timber have risen from 2,252,000 feet b. m. in 1906 to 44,764,000 in 1919, with a value of \$99,893. The sales for 1920 were 45,403,000 board feet, and for 1921 amounted to 36,881,000 board feet. The Service estimates the various species of standing timber in billions of feet at: Western hemlock, 52; spruce, 12; western cedar, 4; other woods, 7. The work of the Service has been facilitated as regards the public by the establishment at Juneau of an Alaskan division.

The Alaskan National Forests have been divided into 15 paper-pulp units. One mill has been started at Port Snettisham to handle one hundred million board feet of lumber now under contract. Another section, known as the Behm Canal Unit, on the west side of Ravallagiedo Island has been sold. It includes 100 million cubic feet, about one million cords. Negotiations are in progress for the sale of 335 million feet on Admiralty Island. The Service is studying the combination of pulp-making and hydro-electric power, in coöperation with the Federal Power Commission. Surveys of power resources and of timber fit for sale were made the past season.

RIVERS AND HARBORS. Federal action has been taken for the improvement of the Apoon mouth of the Yukon river, and of the Nome harbor, where the mouth of Snake river will be dredged and two jetties built.

AIDS TO NAVIGATION AND COAST SURVEYS. Ten new lights, 10 buoys, and one beacon were established in 1920. The Coast Survey has continued its work in the coast waters, and reports 21 dangerous pinnacle rocks in Sumner and Clarence straits alone. Its work in 1920 included 2695 sq. m. of triangulation; 28 miles of coast lines; and 655 sq. m. of coast channels hydrographically surveyed.

LAND FUR-BEARING ANIMALS. Under a recent act of Congress these animals are now under control of the Biological Survey, Department of Agriculture. The value of such furs has been: 1916, \$931,771; 1917, \$1,064,249; 1918, \$1,363,330; 1919, \$1,379,000; 1920, \$1,148,000. Exclusive of 1273 foxes from the Pribilof islands, the following are the principal pelts shipped out of the Territory from Nov. 16, 1919 to Dec. 1, 1920: Muskrat, 138,443; foxes, 13,246; and land otter, 3017. Fur-farming has steadily grown in importance. There are now 119 fox-farms, generally on isolated islands, thus distributed: Southeastern Alaska, 8; southern, 24; southwestern, 54; Copper valley, 7; interior valleys, 26. The Federal law restricts leases to 12 islands, but over one hundred fox-farms are located within reservations, where they are occupied under permits revocable at will. Efforts to farm martens are being made.

COMMERCE. The Alaskan trade has decreased as shown by data for recent fiscal years. Shipments into the Territory were: 1919, \$35,544,034; 1920, \$33,998,462; 1921, \$27,333,972. Shipments outwards: (Gold and silver excepted), 1919, \$72,068,154; 1920, \$66,498,877; 1921, \$54,126,718. The railway material accounts for the greater part of decrease, over four million dollars. The only increase was in oils, valued at half a million. The principal falling off in exports were fish, \$7,700,000, and copper, \$2,900,000. The gold and silver shipments had values: 1920, \$8,793,085; 1921, \$7,072,114.

MANUFACTURES. Apart from industries connected with fisheries and forests there are few manufacturing establishments. The census reports show steady increase, accompanied by radical changes in method: individual enterprises of early days changing to corporations. In ten years 125 establishments with capital under \$100,000 have fallen to 52, replaced by corporations which increased from 56 to 113 in number. Capital increased from thirteen to sixty-five millions; horsepower from 3975 to 18,646, and average number of workmen from 3099 to 6575.

ALASKA FORESTS. See FORESTRY.

ALBANIA. The geographical district formerly a part of the Turkish empire, consisting of the provinces of Scutari and Janina and of parts of the vilayets of Monastir and Kossovo. Before the war its status was indeterminate and it offered one of the problems at the Peace Conference and afterwards. The estimated area is variously given at 10,500 to 11,500 square miles and the estimated population between 800,000 and 850,000, of whom about two-thirds are Moslems, the remaining one-third who are Christians being divided into Roman Catholics chiefly in the north and Orthodox Greeks in the south. The provisional capital after 1914 was Durazzo with a population of 5000. The larger towns with their estimated populations are Scutari, 32,000; Elbasan, 13,000; Tirana, 12,000; Argyrocastro, 12,000; Berat, 8500; Korytza, 8000; Valona,

6500. Albania proclaimed its independence at Valona, Nov. 28, 1912, and it was accepted in principle by the London Conference of Ambassadors, Dec. 20, 1912. The frontiers were afterwards approximately decided upon by the Powers and it was agreed that the country should be governed by a European prince. On Feb. 21, 1914, the crown was bestowed upon Prince William of Wied who was to rule under an International Commission of Control but in the confusion following the war this Commission of Control left the country which fell into a state of anarchy. The Prince of Wied departed and an attempt was made by Essad Pasha who had been driven out in May but returned in September, 1914, to set up a military government at Durazzo. This project failed, Oct. 5, 1914, and the state of disorder continued. The Austrians overran the country during the war and captured Durazzo, Feb. 28, 1916. Meanwhile the Italians had penetrated Albania, and Jan. 3, 1917, declared Albania independent and set up a provisional government at Durazzo.

GOVERNMENT. After the second attempt of the Peace Conference to divide Albania in January, 1920, a national convention was held by the Albanians at Lushnja and there the foundations of the new government were laid. Executive authority is invested in a regency council consisting of two Christians and two Moslems and in a council of ministers or cabinet consisting of the heads of departments and responsible to parliament; legislative power in a parliament of 72 members forming one chamber and elected by the people. The actual executive power has been in the hands of the cabinet subject to parliament. There have been two definite party groups, the Progressive and the Popular parties together with a smaller group of Independents. In 1921 the ministry was divided about equally between the two principal parties under the premiership of Ilias Vrioni. Plans for a new form of government were under discussion in 1921, the general desire of the people being apparently for a limited constitutional monarchy under a prince belonging to a nation that had no interests in Albania.

ECONOMIC CONDITIONS. In 1921 the country was reported to be in a sound economic condition being without a national debt and one of the few countries that stood on a gold basis. Agriculture was said to have been renewed and general conditions were reported to be prosperous, although capital was needed for the development of the country's rich mineral resources including oil fields and for her railways, wharves, warehouses, etc.

BOUNDARY DIFFICULTIES. During 1920 Albania resisted the attempts to partition her territory and was involved in war with the Italians who occupied the city of Valona and were claiming an indefinite region as its hinterland. The Albanians attacked Valona in June. This was followed by desultory fighting throughout the country and finally, August 2, a truce was signed by the Italians at Tirana. The latter evacuated the region and surrendered Valona, September 27. Albania now directed her efforts to securing recognition from the other Powers. At the meetings of the Supreme Council and of the Council of Ambassadors decision in the matter was postponed until at length in December, 1920, the Assembly of the League of Nations at Geneva having been approached by Albania with a

request for admission, it was decided by a unanimous vote to admit her to full membership in the League. The main difficulty all through had been the question of boundaries. In the first place there was the secret treaty of London whereby the province of Scutari had been assigned to Serbia and the province of Koritsa and Arghyrocastro to Greece in compensation for the Italian mandate and the Italian occupation of Valona. The arrangement with Italy at Tirana, however, involved the renunciation of Italian claims to the mandate and to territorial rights and the Albanians contended that Serbia and Greece had no just basis for their demands. These countries, however, continued to press their claims, Greece on the principle that the provinces in question were inhabited by members of the Greek Orthodox Church, and Serbia on historical, military, and commercial grounds. The conflicting claims were all discussed before the League of Nations in 1921 but no decision was reached. The League's Council referred Albania's complaints against Greece and Jugo-Slavia to the Council of Ambassadors. Albania's position was supported by the Italians who were opposed to the ambitions of Greece and Jugo-Slavia and who desired recognition of Italian rights over the little island of Saseno commanding the entrance to the Adriatic, to which, according to the press reports at the beginning of September Albania made no objection.

The attitude of the Jugo-Slavs was as follows: According to the protocol of Florence of Dec. 17, 1913, the so-called line of Franchet d'Esperey was indicated and the Serbs had taken possession up to that line after the Armistice. The Belgrade cabinet would not admit that the frontier should return to its former position, that is to say the Austrian boundary, and it had several times presented its point of view to the Allies, especially on Jan. 12, 1920, claiming the Franchet d'Esperey line with some slight changes. Nor would it accept the return to the line of the protocol of 1913 because that arrangement had been modified by the secret agreement of London in 1914, and because the frontier, accepted in the protocol, would menace the security of the southern provinces. The Albanian populations in that region were turbulent and many atrocities occurred. The Albanians had advanced into territory claimed by the Jugo-Slavs in the direction of Aras during September. If the limit were fixed in such a way as to guarantee to the Albanians the territory thus occupied, a large number of troops would be required and heavy expense involved. The modifications proposed by Belgrade were, according to the Jugo-Slav point of view, designed merely to return to Jugo-Slavia the territories which have their natural outlet in Serbia. The Conference of 1913 had cut away the regions of Prizren Debor and Djako Vica from their economic hinterland. This attitude of the Serbs had not, according to them, involved any danger to the political integrity of Albania and was true to the principle of "The Balkans for the Balkan peoples." The Belgrade government would not admit any mandate that placed Albania under the control of a great Power like Italy. It intended to respect the independence of Albania but it sought to avoid encountering on its two frontiers of the northwest and the south, as well as on the Adriatic littoral, the power of Italy. Such was the point

of view of the Jugo-Slavs and it was sustained by the French in line with the unchanging French policy of taking sides with its protégés in Central Europe.

In the autumn, military preparations had been made by Jugo-Slavia for some time past, against Albania and on November 8 the British prime minister, Lloyd George, telegraphed to Geneva requesting an immediate meeting of the League of Nations in view of the steady advance of the Jugo-Slav forces into Albania. A note had already been despatched by the Council of Ambassadors to the Jugo-Slav government requiring that the military operations in Albania should cease and the Ministers of Great Britain, France, and Italy at Belgrade gave a similar notice to the Jugo-Slav government. Meanwhile the special commission had decided upon the boundary and the Allied governments were preparing to take measures to compel the Jugo-Slavs and the Greeks to evacuate the territory on the Albanian side of the new line. See WAR OF THE NATIONS.

ALBERTA. A province in the northwest of Canada formerly constituting a large part of what was known as the Northwest Territories; bounded on the west by British Columbia, on the east by Saskatchewan, and on the south by the United States; having an area of 255,285 square miles with a population in 1921 of 581,950 and in 1916 of 496,525. The movement of population in 1919 was as follows: Births, 14,130; deaths, 5507; excess of births, 8628; marriages, 4718. The distribution of population by sex in 1916 was: Males, 277,256; females, 219,269. The rural population in 1916 was 307,776 and the urban 188,749. Chief cities with populations in 1921: Calgary, 63,117; Edmonton, 58,627. In the government which was constituted by the Alberta Act of 1905 executive power is vested nominally in the lieutenant-governor, appointed by the Dominion government but actually in the executive council or cabinet of the legislature; and legislative power is vested in the Assembly, whose members are elected by universal suffrage including women voters. Lieutenant-governor at the beginning of 1921, R. G. Brett; prime minister, Charles Stewart.

ALCOHOL. See CHEMISTRY, INDUSTRIAL.

ALCOHOL AND THE PRACTICE OF MEDICINE. It is not denied that the refusal of the American Medical Association and American Pharmaceutical Association to oppose the passage of the Volstead law had much to do with the wording of the paragraphs relating to medical practice. Neither body of men wished to be put on the light of potential bootleggers. A sort of revolt arose in the ranks of medical practitioners, which was due much less to a demand for more liberal regulations than to the apparent tendency of laymen to usurp the province of professional men. It was not only the wording of the Volstead law, but interference by central authority with the legitimate use of narcotics which provoked deep resentment against outside dictation. The *Journal of the American Medical Association*, the editorial policy of which had undergone no change, was moved to send out a questionnaire to one-half the names on its mailing list in the endeavor to discover the actual strength of this revolt. The practitioner was asked to answer a large number of questions which covered every phase of the use of alcohol in medical practice.

There was no doubt that this movement would have the force of a referendum, as far as the medical practitioner was concerned, and the result was awaited with much interest. About fifty per cent of the practitioners favored or sanctioned the use of spirits in medical practice.

ALEXANDER. King of Serbia, acceded to the throne after the death of King Peter (q. v.) in August. He was born at Cettigne, Montenegro, Dec. 4, 1888, and educated at Geneva along with his elder brother George. The latter renounced his rights in 1909 and Alexander became the heir apparent to the Serbian throne. At the time of the Balkan War he was in command of the first army which distinguished itself at Uskuv, after having broken the resistance of the Turks in a campaign of eight days, and during the latter part of the war won a decisive victory over the Bulgarians at Govedarnik. King Peter soon afterwards committed the government to his regency (May, 1914) when Alexander was barely twenty-six years old. Then came the invasion of Serbia and the exile of the royal family. After the retreat from Albania he undertook the reconstruction of the Serbian army at Corfu and succeeded in restoring discipline and re-creating an effective force. Although he performed the functions of a general on the field of battle, he bore only the title of colonel.

ALFALFA. Although alfalfa is quite extensively grown in Europe and North and South America, general statistics on the production of the crop are not available. In the United States one-fifth of the area in tame hay crops is considered as devoted to alfalfa, so that roughly estimated approximately 20,000,000 tons of the tame hay production in 1921, of 80,000,000 tons in round numbers, was alfalfa hay. The crop is now grown in practically every State, but its general distribution during the past year remained about the same and California, Nebraska, Kansas, Colorado, and South Dakota continued to produce a large proportion of the total yield.

In Canada the production of alfalfa hay has more than doubled since 1917. In 1920 the Canadian production as reported was 584,000 tons from 239,000 acres. The average yield for the 10 years 1911-1920 was approximately 2½ tons per acre. Other statistical records for past years indicate that normally Belgium produces annually about 1,000,000 tons of alfalfa and clover hay, France about 12,000,000 tons of alfalfa, clover, and sainfoin hay, and Germany approximately 1,500,000 tons of alfalfa hay as compared with an average of about 10,000,000 tons of clover hay.

In the United States the year was characterized by general inactivity in the hay market, in which alfalfa shared to a full extent. The largest portion of the alfalfa hay crop has to be shipped long distances to reach consuming centres, and high freight rates militated against an active market. In some of the producing sections farmers received only from \$8 to \$10 per ton for the better grades of hay. An outstanding feature in alfalfa marketing and transportation in 1921 was the shipment of hay from California to New York by way of the Panama Canal at a rate of \$12 per ton, this being \$5 to \$6 less per ton than the freight rates from the Central West.

Alfalfa seed importations for the year ending June 30, 1921, amounted to only 941,000 lbs., as

compared with 18,831,000 lbs. for the preceding year. The alfalfa seed crop of 1921 was injured by drought and hot weather in Kansas, Oklahoma, and other States, and late spring freezes in some sections thinned the stand and thereby reduced the acreage. This reduction was largely offset by larger areas of alfalfa for seed in Idaho, Utah, South Dakota, Montana, and Arizona. The Utah seed crop was good and ranged in some parts from 500 lbs. to 1200 lbs. of seed per acre.

ALGERIA. A region belonging to France in northern Africa, organized in two great divisions known as Northern and Southern Algeria, which in turn are divided into departments and territories as follows: Northern Algeria, (departments): Algiers, Oran and Constantine; Southern Algeria (territories): Ainsefra, Touggout, Ghardia, and the Oases of the Sahara. The territories of the Southern division constitute a separate colony. The area including the territories in the south is variously estimated at from 222,180 square miles to 343,000 square miles and the population as estimated in 1911 was: Northern Algeria, 5,069,522; Southern Algeria, 494,306; total, 5,563,828. Chief towns with population figures for 1912: Algiers, 172,397; Oran, 123,086; Constantine, 65,173, (these three being respectively the capitals of the provinces of the same names); Bone, 42,039; Sidi-bel-Abbes, 30,942; Tlemcen, 39,374; Blida, 35,461. There is a university at Algiers which in 1919-20 had 1428 students and 101 professors; and there are special schools for commerce, agriculture, fine arts, and hydrography. The Moslem schools in 1919-20 numbered 496 with 35,578 pupils. The primary and infant schools, public and private, in 1919-20 numbered 1298 with 132,617 pupils. The secondary schools in 1919 numbered 16 with 9837 pupils. There were also two normal schools for men and three for women. The larger part of the country is of slight value for agriculture, the northern part being mountainous and chiefly adapted to grazing and forestry, but near the coast is a small area of very fertile plains and valleys, which is scientifically cultivated and owned for the most part by Europeans. The most profitable returns come from the vineyards and cereals. Among the cultivators many hold their land on the system of metayage. The chief cereal crops are wheat, barley, oats, and corn, and the chief vegetables are potatoes, artichokes, beans, peas, and tomatoes. There is a profitable cultivation of flax, silk, and tobacco. Fruits are varied and grown abundantly. Mineral resources include iron, zinc, lead, mercury, copper, and antimony. The mineral output in 1919 was as follows: Iron ore, 721,584 tons; phosphate rock, 276,040 tons; zinc and lead ore, 22,116 tons; antimony, 120 tons. Fisheries in 1919 employed 4262 persons. There is a considerable revenue from forest products, the forests having an acreage of 6,560,232 and for the most part belonging to the state and the communes. Stock-raising is important including sheep, cattle, and goats. Wine and olive production are especially important. The yield of wine in 1920 was 157,136,452 gallons. The following information was supplied by the United States Bureau of Foreign and Domestic Commerce in 1921:

The first estimates (unofficial) of the 1921 crops of cereals in the colony were as follows:

DEPARTMENT	SOFT WHEAT	HARD WHEAT	OATS	BARLEY	CORN AND MILLET
	<i>Metric tons</i>	<i>Metric tons</i>	<i>Metric tons</i>	<i>Metric tons</i>	<i>Metric tons</i>
Algiers.....	80,000	100,000	45,000	175,000	400,000
Oran.....	216,400	232,500	80,650	424,300	973,850
Constantine....	25,000	375,000	45,000	500,000	945,000
Total.....	321,400	707,500	170,650	1,099,300	2,318,850

The estimated crop area in acres as of May 15, 1920 and 1921, was as follows:

YEAR	SOFT WHEAT	HARD WHEAT	OATS	BARLEY	CORN AND MILLET
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
1920.....	673,626	2,554,282	590,139	2,828,246	13,114
1921.....	616,285	2,288,526	573,885	2,513,943	22,350
Decrease in 1921.....	57,341	265,756	16,254	314,303	*9236

* Increase in 1921 over 1920.

Livestock in 1919 were as follows: Cattle, 1,092,996; sheep, 9,139,722; goats, 3,793,998; pigs, 108,213; asses, 247,808; horses, 202,839; mules, 184,895.

The figures for the production of mineral ores in Algeria, furnished by the governor-general of the colony, showed a substantial increase for 1920 over 1919, except for iron pyrites and petroleum, which are comparatively unimportant. Iron, lead, and zinc ores, the three leading minerals, did especially well. The table below gives in metric tons the production and shipments of the various ores in 1919 and 1920:

COMMODITY	1919		1920	
	PRODUC- TION	SHIP- MENTS	PRODUC- TION	SHIP- MENTS
	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>
Coal.....	6239	5430	6911	6489
Copper.....	410	.....	(*)	(*)
Iron.....	735,579	758,199	1,071,278	1,090,860
Iron pyrites.....	11,874	11,919	7861	11,041
Lead.....	8457	8614	11,633	11,155
Lignite.....	791	.....	1796	1729
Petroleum.....	833	804	609	571
Zinc.....	13,288	4116	26,422	27,944

* Statistics lacking.

† First 9 months only.

COMMERCE. Algerian foreign commerce in 1920 showed marked development. The value of the goods, including those in transit, which entered into the total trade of the colony (general commerce) during the year was placed at 4,342,000,000 francs (\$338,006,000), an increase of 1,033,000,000 francs (\$199,369,000), over 1919 and 2,692,000,000 francs (\$159,556,000) over 1918. The constant growth of the amount of goods in transit—that is, the difference between the values of the general commerce and special commerce from 120,945,000 francs (\$21,999,105) in 1918 and 261,635,000 francs (\$50,495,555) in 1919 to 365,255,000 francs (\$70,494,215) in 1920—demonstrates the importance of the country as a distributing centre for North Africa. According to the Algerian customs authorities, the same standard or valuation was used for both 1919 and 1920. The figures are permanent for the former year, but they are provisional for 1920. Conversions from Algerian paper currency to United States money have necessarily been made at the

normal rate of exchange (1 franc=\$0.193). The average exchange value during the year 1919, however, was approximately 1 franc equals \$0.135 (7.40 francs = 1 dollar), and during 1920, 1 franc equals \$0.0684 (14.62 francs = 1 dollar). Progress was shown in 1920 as to the imports for consumption within Algeria and the exports of its products (special commerce). The increase in the value of imported manufactures was especially notable, amounting to 738,325,000 francs (\$151,181,725), or over 86 per cent, as evidence of what the reserve forces of the country can do in the face of a crop failure, which caused an unfavorable balance in its trade of \$108,938,271 in cereal products alone, two-fifths due to increased imports and three-fifths to decreased exports of these commodities.

The following table shows the value of the imports and exports of Algeria from 1913 to 1920, inclusive, with the part played therein by France, the colony's principal market, and the movement of the "visible" balance of trade. It might be stated that since Algeria is a great tourist country and has few enterprises requiring the investment of foreign capital, its actual trade balance is undoubtedly more favorable than the table shows.

YEAR	IMPORTS FROM—		EXPORTS TO—	
	France	All countries	France	All countries
1913...	\$106,219,287	\$128,789,865	\$66,308,045	\$96,725,617
1914...	84,947,599	101,153,037	48,394,557	72,302,432
1915...	68,815,887	91,136,723	83,731,892	103,661,651
1916...	94,726,523	133,730,665	93,294,849	121,916,942
1917...	93,405,438	131,173,608	129,404,184	165,259,917
1918...	78,527,647	143,194,613	113,020,414	153,256,282
1919...	183,212,198	262,005,799	267,532,740	326,135,646
1920...	384,429,366	489,287,424	211,619,096	278,224,361

America's participation in Algerian imports is not very great, as is shown by the following percentages of the value of goods received directly from the United States, as compared with total imports: 1913, 0.0196; 1914, 0.0162; 1915, 0.0370; 1916, 0.0308; 1917, 0.0206; 1918, 0.0101; and 1919, 0.0364. The decline shown in the later war years may be expected as a result of submarine activity.

The war had a favorable effect on American-Algerian commerce. There was considerable room for improvement, however, even after taking into account the quantity of American goods (impossible to determine) received through French agencies and included in Algerian customs statistics as French. In 1920 the declared exports to the United States from Algeria were valued at \$5,185,894, about evenly divided between the Algiers consulate and the Oran agency. The corresponding figure for 1919 is \$2,166,940, making a gain for 1920 of \$3,018,954. It must be borne in mind in this connection that conversions have been made in the table at the same (normal) rate for both years. The gain, on a basis of actual exchange, value with United States money, becomes more apparent than real, inasmuch as the rate in 1920 was practically twice that of 1919, 14.62 and 7.40 francs per dollar, respectively.

GOVERNMENT. The centre of administration is at Algiers, the capital, and at its head is the governor-general who represents the French government and directs all services with the ex-

ceptions of the non-Moslem departments of the treasury, justice, public instruction, and worship. He is the chief executive authority, prepares the special budget of Algeria, and directs the financial policy. The budget is kept distinct from that of France and is voted by the Financial Delegations and the Superior Council. The former established in 1898 represent respectively the French colonists, the French taxpayers who are not colonists, and the native Moslems, there being one delegation for each of these classes. The Superior Council consists of elected members and the higher officials. There is also a Consultative Council which assists the governor-general. Legislative power is fixed in the French Parliament to which each department of Algeria sends one senator and two deputies. The governor-general at the beginning of 1921 was M. Abel, appointed July 29, 1921.

ALLEGHENY COLLEGE. An institution of the higher education situated at Meadville, Pa.; non-sectarian in policy but under the control of the Methodist Episcopal Church; founded in 1815. The enrollment for the year 1921-22 was 548 of whom 336 were men and 212 women. The faculty numbered 34 including one new professor in English added during the year. Productive funds amounted to \$962,091 and unproductive to \$100,000, total \$1,062,091. A campaign for \$1,250,000 of which \$1,000,000 was for endowment was successfully completed in June. The library contained 50,000 volumes. In 1921 the new gymnasium was completed and an addition to Hulings Hall, the women's dormitory. President, Fred W. Hixson, D.D., LL.D.

ALLEN, JOEL ASAPH. Curator of the American Museum of Natural History, died at Cornwall-on-Hudson, August 29. He was born at Springfield, Mass., July 19, 1838, and studied zoology under Agassiz in the Lawrence Scientific School at Harvard. He taught zoology at Harvard from 1871 to 1885 after which he became curator at the American Museum of Natural History in New York. He was the editor of several important zoological periodicals and was awarded the Walker Grand Prize in 1903. Among his writings may be mentioned *History of North American Pinnipeds*; monographs on North American rodents; *Mammals of Patagonia, Belgian Congo, etc.* He was an extensive contributor to scientific periodicals.

ALLEN, WILLIAM REYNOLDS. Judge, died, September 8. He was born in Kenansville, N. C., May 26, 1860, educated at Trinity College, N. C., and admitted to the bar in 1881. He practiced law from that time at Goldsboro, N. C. He was a member of the North Carolina House of Representatives in 1893, 1899, and 1901. From 1902 to 1910 he was judge of the superior court of North Carolina, and he was elected associate justice of the State supreme court for the term, 1910 to 1927. In politics he was a Democrat.

ALLIANCE FRANÇAISE, FEDERATION DE L'. Organized in 1902 for the purpose of encouraging and furthering in the United States and Canada the study and cultivation of the language, literature, art, and history of France. It comprises more than 200 clubs, societies, and groups in the United States and Canada. During 1921 new groups were affiliated at Athens, Ga., Buffalo, N. Y., Calgary, Can., University of California, Cleveland, Hartford, Conn., Lon-

don, Ont., New York City, Spartanburg, S. C., Roanoke, Va., Bryn Mawr College, Davidson College, Women's College of Oklahoma State University, Faribault, Minn., University of Pittsburg, Peoria, Ill., Wilberforce University, New Rochelle, N. Y., Brooklyn, N. Y., Yonkers, N. Y., Woonsocket, R. I., Atlanta, Ga., Royal Military College, at Kingston, Ont., and the College of the City of New York. Thirty others are in the process of formation. The *Assemblée Générale Annuelle* in 1921 was held April 2 in New York City, and was addressed by Mr. J. J. Jusserand, its Honorary President and French Ambassador to the United States. A communication was read from Mr. LeRoy White, the President of the Federation who was in France. Resolutions were adopted respecting the death in June of Mr. Alexander T. Mason, vice-president of the Federation since 1905. Speeches were also made by Mr. Gonzalve Desaulniers and M. Viviani. One of the important functions of the Federation is to engage lecturers who tour the country visiting and speaking before the various clubs and societies. Prominent among those of 1921 are M. Leonce Benedite, M. Regis Michaud, M. Gaston Riou, M. Frank P. Schoell, M. Emile Villemin, and M. van Gennep. In addition to its annual *Bulletin Officiel* (published in September) the *La France* devotes space to news of the Federation. Of the officers may be mentioned J. J. Jusserand, Honorary President, J. LeRoy White, President; Frank D. Pavay, Vice-President; and Felix Weill, General Secretary. Headquarters are maintained at 32 Nassau Street, New York.

ALSACE-LORRAINE. The territory taken from France by Germany in 1871, and restored to France after the War of the Nations by the Treaty of Versailles in 1919. While it was part of Germany it constituted an imperial territory or Reichsland and was divided into the three districts of Lower Alsace, Upper Alsace, and Lorraine, under a Statthalter appointed and removable by the Emperor, subject to the consent of the Diet. The latter body which constitutes the legislature, consists of two chambers, the first having all nominated members, and the second members elected by general direct suffrage. On the return of the provinces to France they became the provinces of: Bas-Rhin, Alsace, with an area of 1848 square miles and a population of 700,938; Haut-Rhin, with an area of 1354 square miles and a population of 517,865; and Moselle, with an area of 2402 square miles and a population of 655,211. The population according to the German census of 1910 was 1,874,014 of whom the German-speaking numbered 1,634,260, and the French-speaking 204,262; and the population according to religion at that census was: Catholics, 1,428,343; Protestants, 408,274; Jews, 30,408. The number of Germans banished from the provinces down to October 20 according to the press was as follows, distributed among the three departments: Moselle, 47,579; Bas-Rhin, 19,024; Haut-Rhin, 15,852. There was no way of knowing the number of Germans who had left the country of their own free will. In the first place the latest census before the Armistice dated from 1910. In the second place during the war there was an extensive movement of the population toward the west owing to the requisition of working-men in the mines or at the front. According to the German figures which

the French considered untrustworthy, there had been in Alsace before the Armistice about 123,000 Germans. On the basis of these figures there would have been from 40,000 to 50,000 German citizens who voluntarily left the country after the Armistice.

ALUMINUM. Demand for aluminum appeared to decline during the year owing in part to the depression of the automobile industry. Quotations for domestic aluminum, which at the first of 1921 were 28.3 to 28.5c. per lb., declined to 24.5 to 25c. in July and in November were cut to 20c. Foreign aluminum was quoted from 3 to 7c. cheaper. Imports of crude aluminum for the first nine months of 1921 were 26,177,852 lbs. with a declared value of 22c. per lb., and exports of domestic aluminum in the same period totaled 1,024,346 lbs., valued at 27c. per lb. French aluminum plants were reported to be operating at about normal capacity, but the German plants were having difficulty, as many of them derived their power from coal, and were therefore at a disadvantage. Japan was still endeavoring to establish an aluminum industry. See **BAUXITE**.

AMERICAN ACADEMY (in Rome). See **MUSIC, General News**.

AMERICAN ASSOCIATIONS AND SOCIETIES. For organizations whose official titles begin with the word American, see under the important descriptive word of the Title.

AMERICAN FARM BUREAU FEDERATION. See **AGRICULTURAL EXTENSION WORK**.

AMERICAN LEGION. See **LEGION, AMERICAN**.

AMERICAN ORCHESTRAL SOCIETY. See **MUSIC, Orchestras**.

AMES, CHARLES WILBERFORCE. Publisher, died, April 4. He was head of one of the prominent publishing houses in the West, and associated with many important enterprises in Minnesota. He was born at Minneapolis, Minn., June 30, 1855, and graduated at Cornell University in 1878. He learned the printer's trade in the office of a Californian periodical, and after a few years in which he was employed in railway engineering and on the Pennsylvania State geological survey, he served (1879-1890) on the editorial staff of the *Christian Register*, Boston, Mass., of which his father was the editor. After 1899 he was general manager of the West Publishing company and director of the American Law Book company in New York City. Down to 1913 he was director of the Northwestern Trust company. He was a member of the Winter, Truesdell, Ames company of Minneapolis, and a member or director in various institutions in St. Paul and elsewhere. He was a trustee of the American Fellowship in French Universities, and visited France in its interest in 1917.

AMHERST COLLEGE. An institution of the higher learning, situated at Amherst, Mass.; founded in 1821. Students enrolled for 1921-22 numbered 528. There was 1 graduate student and there were 7 Fellows. The members of the faculty numbered 53. Productive funds, \$4,810,576; income for the year \$476,087. The library contained 300,000 volumes. President, Alexander Meiklejohn. On June 18-22, Amherst celebrated its centennial. Lord Jeffery Amherst, a descendant of Lord Amherst from whose name the college was taken, was a guest of the occasion. The celebration included historical exercises and addresses by well-known Amherst alumni and others.

AMMUNITION. See MILITARY PROGRESS.

AMUMSDEN. See POLAR RESEARCH.

ANALYTICAL CHEMISTRY. See CHEMISTRY.

ANATOLIA. The part of the former Turkish empire which corresponds to Asia Minor, consisting of a peninsula at the western extremity of Asia, bounded by the Black Sea on the north, and by the Mediterranean on the west; with an area variously estimated at from 196,000 to 199,272 square miles, and a population estimated at from 9,000,000 to 10,186,900, of whom about 7,000,000 are Turks. The administrative divisions or vilayets on the basis of calculations made under the old empire, with their estimated areas and populations are as follows: Brussa or Brusa, area, 25,400 square miles, population, 1,626,800; Smyrna or Aidin, area, 25,801, population, 2,500,000; Konia, area, 39,410, population, 1,069,000; Angora, area, 27,370, population, 932,800; Adana, area, 15,400, population, 422,400; Sivas, area, 23,970, population, 1,057,500; Trebizond, area, 16,671, population, 1,265,000; Kastamuni, area, 19,570, population, 961,200; there were also the two independent sanjaks of Ismid (area, 3130 and population, 222,700) and Bigha (area, 2550 and population, 129,500). The above figures, however, do not indicate present conditions, the country being the seat of war between Greece and Turkey during the year, and the status of parts of it being indeterminate, as for example, Smyrna which was in the possession of the Greeks. Anatolia is the purely Turkish part of the former empire, and after the war was regarded as the only proper basis for the new Turkish state. It was overrun by the Nationalists under Mustapha Kemal who became the main power in the state, completely overshadowing the authorities at Constantinople. See the articles—TURKEY; GREECE; and WAR OF THE NATIONS.

ANDRADE, FRANCESCO D'. Portuguese baritone, died in Berlin, February 9. He was born in Lisbon, Jan. 11, 1859. After his debut in San Remo, Italy, in 1882, he soon became famous and sang at the principal opera houses of Europe, equally esteemed as one of the foremost Liedersingers of his day. An unconquerable fear of the sea caused him to decline several flattering offers from American managers. During the last twenty years he lived in Berlin.

ANGLO-SAXON. See PHILOLOGY, MODERN.

ANGOLA or PORTUGUESE WEST AFRICA. A Portuguese colony on the western coast of Africa bounded by French Congo, Belgian Congo, the Union of South Africa and the former German colony of Southwest Africa. It has belonged to Portugal since 1575, and its present boundaries were fixed by conventions of May 12, 1886, May 25, 1891, June 11, 1891, and Dec. 30, 1896, as regards French Congo, Belgian Congo, British South Africa, and German Southwest Africa, respectively. The estimated area is 484,800 square miles, and the population has been given at about 4,120,000, but an estimate in 1914 placed the native population as low as 2,124,361: Capital, San Paulo de Loanda; other important towns, Cabinda, Ambriz, Novo Revondo, Benguella, Mossamedes and Port Alexander. The military forces maintained in the colony vary between 2721 and 4731, the majority being natives. The chief products are: Coffee, rubber, wax, sugar, vegetable oils, coconuts, ivory, oxen, and fish. The supply of rubber which was formerly an im-

portant industry has latterly declined. There are large resources of copper, malachite, iron, petroleum, and salt, and gold has been found. Trade is chiefly with Portugal. Textiles are the chief imports, and coffee and rubber have been the chief exports. Imports in 1919 exclusive of Congo 10,208,893 escudos, exports exclusive of Congo 11,718,322 escudos. The railway line open for traffic, according to latest figures, was 818 miles. The government is under a high commissioner whose headquarters are at Loanda, and the colony is divided for administrative purposes into nine districts.

ANHALT. A free state of Germany, formerly a duchy of the German empire, bounded by the Prussian provinces of Brandenburg and Saxony; with an area of 888 square miles and a population in 1919 of 331,258. Capital, Dessau, with a population in 1919 of 57,658; other cities, Bernburg, 33,724; Cöthen, 23,416; Zerbst, 19,210; Rossau, 11,354. The great majority of the population are Protestants. The estimated income and expenditures, 1920-1921, stood at 62,285,300 marks. Before the war the government was under a duke with a legislature or diet of thirty-six members, but in 1918 the system was changed, and the duchy declared a republic. A constitutional assembly having been voted, the new state received a constitution, July 18, 1919. In accordance with this the diet was elected by choice for three years, and the executive power was placed in a state council of five members, one of whom, the chairman, bears the title of president.

ANIMAL INDUSTRY. See LIVE STOCK.

ANKENY, LEVI. Former United States Senator from Washington, died, March 29. He was born near St. Joseph, Mo., August 1, 1844, and educated at Portland, Ore. He became prominent in the commercial and political life of Oregon and Washington, serving at one time or another as the president of seven banks in these two States. He was a Washington delegate at the Republican National Convention of 1900 and 1914, and was a member of the Republican National Committee, 1904 to 1908. Meanwhile he was elected senator from Washington for the term 1903-1909.

ANNAM. A French protectorate, constituting part of French Indo-China (q. v.), its present status dating from the treaty ratified at Hué, Feb. 23, 1886. Area, about 52,100 square miles; population in 1919, 5,952,000 including 2117 Europeans, aside from the military forces. The capital is Hué (60,711), and the largest town, Binh-dinh (74,400). In the towns and along the coast the population is Annamite and in the Highlands it consists chiefly of Moi tribes. Education was reorganized at the end of 1920, and the official schools were placed directly under the control of the French government. According to the latest available figures there were: 98 elementary schools with 5985 pupils; 685 village schools with 14,438 pupils; 16 secondary schools with 5058 pupils; and a few other institutions for more advanced education. Agriculture is carried on mainly in the interior where irrigation has been provided, and rice is one of the chief products, the others being: Cotton, corn and other cereals, areca nuts, mulberries, cinnamon, sugar, tobacco, betel, bamboo, manioc, coffee, dyes, and a variety of medicinal plants. There is a small exportation of raw sugar. Stock-

raising is carried on to some extent. Mineral resources include copper, zinc, gold, coal, salt, and hematite iron. The chief imports are: Cotton yarn and cottons, petroleum, tea, tobacco, and paper goods and the chief exports: Sugar, rice, cotton and silk tissues, tea, cinnamon, and paper. The exports in 1919 were 51,556,788 francs and the imports, 9,243,049 francs. Shipping in 1919 showed the Japanese with the largest tonnage, 42,580 and the British next, 15,114. The total tonnage at the port of Tourane was 97,924. The nominal head of the government is the king, Khai-Dinh, who succeeded to the throne in 1916, but the government is under French control and internal affairs of the country are administered by the French, although a large number of Annamite officials are appointed.

ANN ARBOR MUSIC FESTIVAL. See **MUSIC, Festivals.**

ANTARCTIC REGIONS. See **POLAR RESEARCH.**

ANTHRAX. This communicable disease, chiefly occupational in origin and prone to occur in wool-sorters, workers in hides and others who handle animal products of industry has been much in the public eye in recent years through its transmission by infected shaving brushes. The conditions for inoculation are almost ideal, for the razor makes the small wound which admits the virus, or, even before application of the instrument a preëxisting abrasion may be inoculated while lathering. The public has been repeatedly cautioned against buying cheap shaving brushes and some attempts have been made at routine inspection of such articles in the market in order to determine whether or not they are dangerous. But aside from its burdensome character this resource is hardly adequate to protect the community and recently the Public Health Council of the State Department of Health has passed a regulation effective Jan. 1, 1922, prohibiting the manufacture, sale, or offering for sale shaving brushes made from horsehair, it having become apparent that brushes of this origin were the ones responsible for the communication of the disease. The comparative infrequency of the latter at the present day as a result of progressive sanitation robs anthrax of much public interest, but every one should know that it is prominent in the list of diseases communicated from animals to man, that it has a high mortality, that it appears in several entirely distinct forms, of which the externally inoculated is one and that since this form is sometimes called malignant carbuncle, it is occasionally confused with common carbuncle, which is also a dangerous and sometimes fatal disease.

ADDENDUM ON ANTHRAX. During the past few years a large number of cases of anthrax have been reported as occurring in Pennsylvania, quite a few ending fatally. In a number of instances the source of infection was traced to cheap shaving brushes made from horsehair. Early in 1920 five workers in a horsehair dressing plant outside of Pennsylvania developed the disease and as Philadelphia is the centre for the preparation of horsehair for manufacturing purposes, the Division of Industrial Hygiene of the Pennsylvania Department of Labor and Industry undertook a survey of the entire State for anthrax in these workers. While no case was found it was thought best to issue a ruling that all horsehair should be subjected to dry heat for

24 hours at 200 degrees F. or for 2 hours to steam at 15 lbs. pressure, or finally to continual boiling in water for 3 hours. In another industry, tanning, which involves handling possibly infected hides, there were in 1920 sixteen cases of anthrax in the workers, the largest for many years. The report of the survey of anthrax in tannery workers has not yet been made public.

ANTHROPOLOGY. **ANTIQUITY OF MAN AND PHYSICAL ANTHROPOLOGY.** Under the influence of practical considerations, such as eugenic and military aims, physical anthropology is receiving even greater attention than before. Thus, in Munich Professor Rudolf Martin, Germany's most eminent physical anthropologist, is applying his somatological knowledge to the ambitious programme of improving the physique of German students, and the Anthropological Committee of Denmark has investigated problems related to the condition of children's teeth, the growth of boys and girls, the influence of economic conditions on the stature of recruits, etc. In America Dr. Hrdlička has added a manual of *Anthropometry* to his earlier book on *Physical Anthropology* and *A Laboratory Manual of Anthropometry* has also been published by Professor Harris H. Wilder. In India the *Principles and Methods of Physical Anthropology* have been discussed in a special treatise by Sarat Chandra Roy.

Apart from this subdivision of the general field there is a widespread interest in the science of man, which not even adverse financial conditions have been able to check. Indicative of this interest is the issuance of a new quarterly entitled *Man in India* (edited by Roy), which purports to supply a record of anthropological research with special reference to the country of its birth.

While other writers have begun to explain racial differences through the influence of the ductless glands, Eugen Fischer continues to develop the correlation of race origins with the domestication of the human species. A brief summary of his views appears in *Natur und Technik*, 1921, p. 1 seq., while an article of his own is contributed to the *Eduard Hahn Festschrift*, pp. 1-10. There can be no doubt that from the very beginning of human culture mankind has lived under conditions of alimentation and shelter corresponding closely to those to which domesticated animal species are subjected. As a result there is a close parallelism between human traits and those of such species as are distinguished from their wild kin. One general trait is the excessive variability shared by human and other domesticated forms, to which there is nothing corresponding in wild species. More specifically, variation develops in the same direction and in the same organs. Thus, all wild forms have an ample and quite definite pigmentation of the iris, and this does not vary with high latitudes, for white Arctic animals have precisely the same eye-color as their darker-skinned cousins. On the other hand, among all light-skinned domesticated forms pigmentation of the eye oscillates, decreases, and occasionally disappears; and the lighter tints of the human eye must be directly connected with this biological phenomenon. Fair hair, gigantism, dwarfish stature, and other features likewise exist both in man and the domesticated varieties of various species. This mode of regarding racial traits

raises the important query, whether a like variation in different areas has genealogical value or should be treated merely as a spontaneous variation due to the capricious operation of the laws of domestication. Jens Paulsen in an essay on *Wesen und Entstehung der Rassenmerkmale* (Archiv für Anthropologie, 1920, pp. 60-70) combines the theory that the action of the ductless glands has shaped racial differences with the view that this endocrine functioning itself is partly the result of domestication.

Professor Eugene Dubois has electrified the scientific world by a communication to the Royal Society of Amsterdam, in which he states that prior to his discovery of *Pithecanthropus* he had found in Java two fossilized human skulls strongly resembling those of aboriginal Australians, though still more primitive, and thus suggesting the specialization of the Australian type in southern Asia and during the Pleistocene period (*Man*, 1921, p. 32).

As the year closed, another find of far-reaching significance was reported in the British and American press (*Science*, Dec. 9, 1921), viz. the discovery of a fossil human skull from Northern Rhodesia with practically complete and intact cranium. The prognathism of the upper jaw is extreme, as is the maxillary height between the anterior nasal spine and the alveolar margin. The nasal bridge is rather prominent and the supraorbital ridges are more pronounced than in any other known fossil human skull. Cranial height and breadth are small, suggesting a low cranial capacity. From the preliminary statements it appears that the Rhodesian find is ruder than any of the Neandertal skulls hitherto unearthed and may turn out to be intermediate between *Pithecanthropus* and the Neandertal species. The relic is now at the British Museum, where it is to be studied by Professors A. Keith and Elliott Smith.

The conventional classification of European types is assailed by Professor Jan Czekanowski (*Recherches anthropologiques de la Pologne, Bulletins et Mémoires de la Société d'Anthropologie*, 1920, pp. 48-69), who finds not only the brachycephalous medium-sized Alpine and the dolichocephalic tall Nordic type but at least four other local varieties in Eastern Europe. Of these a mesocephalous short "pre-Slavic" group represents the oldest and most widely distributed element in Poland, while a broad-skulled, tall, and blond type and an obsolescent short, fair, and extremely dolichocephalic variety are equally noteworthy.

In the different field of prehistoric archaeology two general works may be cited. A brief and unpretentious sketch of Neolithic times is offered in Professor J. M. Tyler's *The New Stone Age in Northern Europe*. M. C. Burkitt's *Prehistory, a Study of Early Culture in Europe and the Mediterranean Basin* represents the work of a British scholar who has personally done excavation in Spain under the supervision of Abbé Breuil and paid special attention to prehistoric art. Two valuable summaries of our knowledge of prehistoric Spain are furnished by Professor Pedro Bosch-Gimpera of Barcelona in his *La arqueología preromana Hispánica* and *Prehistoria Catalana*. Among the results may be mentioned the proof that the Iberian earthenware formerly derived from Mycenaean sources does not ante-

date the last pre-Christian centuries. Purely anthropological in content, though written by a zoölogist, S. J. Holmes's *The Trend of the Race* embodies a singularly cautious and trustworthy summary of eugenicist thought with searching criticism of its statistical documentation.

Under the unpretentious title of "A Few Andamanese Skulls with Comparative Notes on Negrito Craniometry" (American Museum of Natural History, Anthropological Papers, vol. XXIII, pt. 4), L. R. Sullivan supplies in reality a very worth-while survey of the whole Negrito problem. The three Andamanese skulls described by him conform very closely to those noted by earlier writers. In general the brain capacity of the Islanders averages 1269 for males and 1128 cc. for females. The skull is decidedly broad, with an index of 82.5. In a majority of characters the Andamanese are considerably less variable than their fellow-Negrito of the Philippines. These, as well as the Semang Negrito of the Malay Peninsula, exceed the Andamanese with reference to all skull diameters. The inference is not that they are racially distinct but merely that the Andamanese separated from the common Negrito stock at a fairly early date. On the other hand, Sullivan hesitates to extend the theory of a close community of stock to the very short Negroid type recently discovered in New Guinea. His opinion is that these Papuan "Negrito" may turn out to be merely dwarfed Melanesian Negroids.

In an article on "Alt-und neuweltliche Kalender" (*Zeitschrift für Ethnologie*, 1920-21, pp. 6-37), F. Graebner himself resumes discussion of the question whether the higher civilizations of the New World have an alien origin and arrives at an affirmative result. According to him, the peculiar Mexican calendar with its mutual adjustment of two distinct cycles is widely duplicated in East Asia, including Malaysia, Siam, and China. The calendric coincidence is further supported by a series of ethnographic and especially mythological parallels, the latter being mainly derived from a comparison of Preuss's North Mexican tales with the folklore of the Old World. An immediate contact between Mexico and South-eastern Asia is argued for, but the suggestion is offered that the relationship can be traced much farther to the West, though at present it may be premature to determine the ultimate source of origin for Peruvian and Central American culture. Graebner finds that a number of significant parallels thus connect America and the Sudanese area, for example, the Swastiks, the plastic style of Benin as well as its plaitwork band-ornamentation, shared with Ceylon, Mexico, and Colombia.

THEORETICAL ETHNOLOGY. Pursuing his application of psychoanalytic theory to ethnological phenomena, W. H. R. Rivers devoted his presidential address before the Folk-Lore Society to a discussion of "Conservatism and Plasticity" (*Folk-Lore*, 1921, 10-27). He suggested that the concept of the father-ideal which figures in Freud's system could be fruitfully adapted to the needs of ethnographic interpretation. In Melanesia the place of the individual father is occupied by the group of old men wielding authority. Their joint influence would account for the slavish conformity to established usage noticeable among the young in this area and in savage society generally. It is further strengthened by the

nature of religious worship—an ancestral cult. Nevertheless the variety of funeral rites in Melanesia indicates a certain degree of plasticity. To account for this Rivers utilizes the concept of transference, supposing that a group of immigrants possessing a superior culture would be able to overcome the native conservatism by establishing the same sort of relation between themselves and the aborigines which in our civilization is created by the transfer of paternal authority to a priest or physician. An attempt to correlate psychology with ethnology is also made by R. H. Lowie in "A Note on Aesthetics" (*American Anthropologist*, 1921, 170-174), where exact measurement is suggested as a means for determining distinctive tribal decorative styles, Fehner's aesthetic experiments being taken as the point of departure.

The Graebnerian theory persists as a factor in arousing discussion. In an article on "Masks and Moieties as a Culture Complex" (*Journal of the Anthropological Institute*, London, 452-460), A. L. Kroeber and C. Holt reject the Graebnerian assumption that moieties and masks are linked elements in a single cultural stream or layer. This has led Father W. Schmidt to defend once more the basic doctrines of the Graebner school ("Die kulturhistorische Methode u. die nordamerikanische Ethnologie," *Anthropos*, XIV-XV, 546-563), in the course of which, however, he discovers much unity of purpose in the American and modern German culture-historical schools, especially as regards the repudiation of evolutionary schemes. All relevant problems are briefly characterized from the American point of view in Franz Boas's "The Methods of Ethnology" (*American Anthropologist*, 1920, 311-320). Boas rejects alike the older evolutionist and the recent diffusionist doctrines in their extreme forms but pleads for a stricter historical approach with the emphasis on the dynamics of cultural change. It is also interesting that, while recognizing the suggestiveness of psychoanalytic thinking, Boas is skeptical as to the solution of symbolism by Freudian principles.

Questions of social organization are discussed in E. S. Hartland's *Primitive Society* and Father W. Koppers' *Die Anfänge des menschlichen Gemeinschaftslebens*. Hartland defends his old thesis that maternal descent precedes patrilineal reckoning of kinship. Koppers' book is devoted to a rejection of Morgan's philosophy of social evolution for which he substitutes a scheme derived from Father W. Schmidt's modifications of Graebner's theory. Specifically, Koppers attempts to prove that the very oldest culture—that represented by the modern Pygmies—lends no support to the hypotheses of primitive promiscuity and communism. He also holds that maternal descent did not precede paternal descent but that both evolved independently of each other from a primeval form of society, in which neither parental side was weighted more than the other. It is interesting to find that this representative of the Austrian Catholic school attaches great significance to economic factors, especially in explaining the status of woman. The sociological aspect of anthropology also continues to receive attention at the hands of distinguished scholars in adjoining branches of inquiry. Thus, the first volume of Sir Paul Vinogradoff's *Outlines of Historical Jurisprudence* largely summarizes ethno-

graphic material and supports the traditional doctrine that ownership of land was originally communal. Precisely the opposite view is defended by the Austrian historian Alfons Dopsch in *Wirtschaftliche und soziale Grundlagen der europäischen Kulturentwicklung*, where old Roman and later medieval sources are interpreted to prove the existence of private property among the ancient Germanic peoples.

The synthetic tendency lately noticeable in other fields of anthropology has quite recently found expression in Dr. Edward Sapir's volume on *Language*, probably the first general work on the subject by one who combines the advantages of traditional philological training with experience as a field student of primitive tongues. One of the remarkable features of the work is the rejection of the current classification into isolating, agglutinative, and inflective languages. For this time-worn scheme Sapir substitutes another pivoted on the relative importance of derivational and relational concepts. In spite of its abstract formulation this scheme accords very well with established historical relationships. On the subject of linguistic methodology Franz Boas offers some important remarks in "The Classification of American Languages" (*American Anthropologist*, 1920, 367-376), where recent attempts to connect linguistic families hitherto considered distinct are deprecated and the plea is made for a more intensive study of dialectic differentiation.

In the long-neglected domain of anthropogeography Isaiah Bowman and Richard Dodge's adaptation of Jean Brunhes's *La Géographie humaine* under the title *Human Geography* merits attention since Brunhes, in contrast to other geographers who have dealt with ethnographic phenomena, displays singular sanity in applying climatic and other environmental conditions to the study of culture.

The rapprochement between the various sciences concerned with human conduct is indicated by a number of articles and other publications. Among these may be cited Professor Harry Elmer Barnes's "Some Contributions of Sociology to Modern Political Theory" (*American Political Science Review*, November, 1921, pp. 487-533), where the contributions of modern anthropology on the race question and on the character of the state are concisely and accurately summarized. Robert E. Park and Ernest W. Burgess's *Introduction to the Science of Sociology*, a comprehensive source book, also pays specific attention to anthropological theory. The announcement of R. Thurnwald's *Psychologie des primitiven Menschen*, copies of which are not yet available in this country, will be eagerly awaited by those who expect much enlightenment from a synthesis of psychological and ethnological data and points of view.

ETHNOGRAPHY. Under the influence of Max Schmidt's investigations of Peruvian ornamentation, the late H. Haeblerlin examined Pueblo ceramic patterns for the purpose of correlating the designs with those automatically produced by the technique of twilled plaiting. His results are embodied in a paper entitled "Das Flächenornament in der Keramik der alten Pueblo-Kultur" (*Baessler-Archiv*, vol. VI, pp. 1-35), which has recently become accessible in this country. Haeblerlin finds that the ancient Pueblo potter transferred the plaiting designs to her

earthenware without the least recognition of the greater freedom granted by a surface imposing hardly any limitations. There was no tendency to inject naturalistic interpretations into the ornamentation. Whatever realistic motives occur are in no way genetically related to the geometric patterns.

In "The House of the Great Kiva at the Astec Ruin" (American Museum of Natural History, *Anthropological Papers*, XXVI, pt. 2), E. H. Morris describes a very unusual building discovered in northern New Mexico. It consists of a double circle, the inner, or kiva proper, corresponding to the disproportionately large hub of a wheel, while the outer comprises a series of arc-shaped rooms. Many of the details of the structure have as yet enigmatic functions, but the elaborateness of the whole suggests that it represented the sanctuary of the entire community. Somewhat similar edifices have been described in other sections of the Pueblo area, and through a comparison of relevant data Morris is led to the provisional hypothesis that buildings of this category will ultimately turn out to have a distribution coterminous with that of the Chaco Cañon type of community dwelling.

S. J. Guernsey and A. V. Kidder have published an additional report on "Basket-Maker Caves of Northeastern Arizona" (*Papers of the Peabody Museum*, VIII, no. 2). Their earlier conclusion of a distinct Basket-Maker culture is substantiated by their recent finds. There is no evidence of coursed masonry or pottery in Basket-Maker caves, corn was cultivated in a single variety, cotton and beans were not planted, and the turkey was not domesticated. The positive traits distinguishing these people from the Cliff-dwellers include twined bags, square-toed sandals, coiled basketry as a mortuary offering, and the dart-thrower. Chronologically the Basket-Maker culture is earlier, since Cliff-dweller remains are superimposed on a Basket-Maker burial in Sunflower Cave. The dart-thrower points to Mexican influence, and some of the other material suggests a connection with southern New Mexico and the Coahuila caves of northern Mexico, but beyond these hints it seems impracticable to go at the present time.

An important additional installment on the "Ethnology of the Kwakiutl" by Franz Boas has been issued by the Smithsonian (*35th Annual Report, Bureau of American Ethnology*); it embodies a vast amount of both descriptive data on customs and linguistic material in the form of texts. Great activity in publication of extraordinarily beautifully illustrated monographs is evinced by the Museum of the American Indian, Heye Foundation. Three of the recent volumes merit special notice—Marshall H. Saville's *The Goldsmith's Art in Ancient Mexico*, M. R. Harrington's *Religion and Ceremonies of the Lenape*, and A. Skinner, *Notes on Iroquois Archaeology*.

A noteworthy paper summarizing the theoretical results of years of investigation by the American Museum of Natural History has been published by L. Spier under the caption "The Sun Dance of the Plains Indians" (American Museum of Natural History, *Anthropological Papers*, vol. XVI, pt. 7). Spier corrects a number of current misconceptions: the ceremony, despite its popular name, is not essentially connected with the sun, nor except among the Dakota with

torture of the main celebrants. The objective nucleus of the whole procedure seems to be the erection of a pole in an inclosure and a dance around the pole. Priority lies between the Arapaho and the Cheyenne, with odds slightly in favor of the former. To this historical inquiry Spier adds a psychological one as to the processes involved in the dissemination of the phenomenon. The main elements of the ceremony are common to nearly twenty tribes, yet there has been a "differential borrowing" since each tribe has exercised a certain amount of selection regarding the features offered for acceptance. Spier finds that the objective procedure is far more stable than the methods for organizing the dance, while the interpretation given to the set routine of the performance varies from tribe to tribe. In this respect the sun dance conforms to a general rule observed in the transmission of ceremonies. Another question consists in the reasons for adopting some elements and rejecting others. According to Spier, the modifications occurring are due in part to the innovations of powerful leaders and to elaborations due to the intrusion of minor rituals; the interests of the recipient group, the possible rivalry of some other ceremonials also play their part. It becomes obvious that no full understanding of any diffused ceremonial is possible unless a dynamic mode of approach taking such variables into consideration is substituted for the customary static point of view.

The detailed results of the Duke of Mecklenburg's expedition to Africa are beginning to come to hand now. In the first installment of his *Forschungen im Nil-Kongo Zwischengebiet* Dr. J. Czekanowski discusses the culture of Ruanda and neighboring regions, where the tall pastoral Batutai rule over a horticultural Bantu population designated as Bahutu and over the hunting tribe known as Batwa. The last-mentioned group is very short, but does not represent genuine Pygmies, though Pygmy strains are discernible in the population. The Batutai, on the other hand, while speaking a Bantu language, differ racially, belonging to the same East African division as the Somali and Galla, i. e., to the so-called Hamitic tribes. Culturally and socially the distinctions of the three racial types is clearly marked, the Batwa being a pariah-like people but providing the remainder of the natives with pottery and also functioning as rain-sorcerers.

In an article on "Les langues de l'Afrique" Maurice Delafosse (*L'Anthropologie*, XXX, p. 545 seq.) offers a linguistic grouping differing in part from accepted classifications. The aboriginal languages are divided into three basic groups—the Malayo-African, composed of Malagasy alone; the Afro-Asiatic, including the Semitic, Hamito-Berber, and Hamito-Kushitic; and the Negro-African. The last-mentioned is subdivided into eight categories, of which one is formed by the Hottentot and Bushman, while the Bantu appear as a sub-group in another category, the remaining categories being all composed of languages customarily classed as Sudanese. G. W. Murray in an essay on "The Nilotic Languages" (*Journal of the Royal Anthropological Institute*, London, 327-368) contends that Masai, Nubian, and Bari are fundamentally related and at bottom Sudanese, though transformed by a common Hamitic influence

due to a probably extinct tongue related to Galla; the ancestral speech of the three groups was also connected with Shilluk. A far more spectacular discovery, if established, is presented in A. Drexel's "Bornu und Sumer" (*Anthropos*, XIV-XV, 215-294), where the ancient Sumerian language of Babylonia is brought into connection with the Sudanese languages of Bornu, south of Lake Chad.

Under the title of "Nouveaux Documents sur l'Ethnographie ancienne de la Mauritanie (*L'Anthropologie*, XXX, 323-368), R. Verneau describes and interprets finds made by Doujat d'Empeaux in the Hodh and Aouker districts of the Sahara. This region had not yet been desiccated at the time it was occupied by a Neolithic population, which, it turns out, was relatively numerous, skillful in the manufacture of stone tools, pottery, and woodwork, and capable of erecting stone habitations. The people were both hunters and tillers, but there is no evidence for or against the domestication of animals. Certain interesting differences appear between the ancient dwellers of the Northern and the Southern Sahara. In the North polished axes are rare, but they multiply as one goes southward till the percentage of such tools in a total of stone finds becomes nearly twenty-five. Further, the Northern axes are flat and elongated and have a narrow blade, while those from the South are massive; the former resemble European types, the latter are identical with Nigerian forms, such as are still worn as talismans by Negroes.

The relations between Madagascar and Malaysia are more definitely formulated by J. Hornell (*Man*, XX, pp. 134-139), who demonstrates that the outrigger-canoe of Madagascar and East Africa is a direct descendant of Javan forms. The contact must antedate Hindu invasion of Java.

The present state of scientific knowledge of Egyptian culture, so important for the solution of all African culture-history, is outlined, primarily for ethnologists, in A. Wiedemann's *Das alte Agypten*.

Mr. and Mrs. S. W. Routledge's work on *The Mystery of Easter Island* has stimulated W. H. R. Rivers to an interpretation of "The Statues of Easter Island" (*Folk-Lore*, 1920, pp. 294-306). Rivers suggests that the motive for the erection of the huge figures on burial-places was a religious one, the statues serving as resting-places for the souls of the dead. The crowns of separate red material adorning the heads of the effigies do not represent the frizzly Melanesian hair as it appears when bleached with lime but represent the hats worn in other regions of Oceania in association with a cult of the dead. This hypothesis is consistent with the fact that one group of statues lacks crowns, the presumption being that these represented living individuals or minor deities. Another Oceanian problem is dealt with in A. C. Haddon's Huxley Memorial Lecture on "Migrations of Cultures in British New Guinea" (*Journal of the Royal Anthropological Institute*, London, pp. 237-280), where the author contends that the culture of southern coastal New Guinea comes from the North and specifically that the initiation ceremonies so highly developed in the island are associated with the Papuan rather than the Melanesian element of the population.

A linguistic result of considerable importance,

if substantiated by further research, is announced by W. Pröhle in his "Studien zur Vergleichung des Japanischen mit den uralischen u. altaischen Sprachen" (*Keleti szemle*, XVII, 147-183). He finds that the morphology of Japanese is essentially identical with that of the Ural-Altaic stock and that its phonetic character likewise proves an ultimate affiliation with that family. A useful collection of "Notes on the Stone Age People of Japan" (*American Anthropologist*, 1921, 50-76) has been published by Professor H. Matsumoto.

EXPEDITIONS, MEETINGS, PERSONALIA. Possibly the most comprehensive field-work of the year has been that attempted in Polynesia by the Bayard Dominick Expedition—in reality a series of expeditions by a considerable number of investigators. Most of the participants returned to Honolulu or the Pacific coast of America in August, R. T. Aitken and J. F. G. Stokes remaining in the Austral Islands which they had succeeded in reaching only after a considerable delay. From preliminary reports it appears that E. W. Gifford has obtained important results relating to Tongan society and kinship nomenclature, while William C. McKern secured worthwhile archaeological data on the same group; in the Marquesas E. S. Handy conducted the ethnological research while R. Linton devoted himself to archaeology. Dr. L. H. D. Buxton of England has returned from a successful trip to Malta, where he investigated the physical anthropology of the people. Drs. Carl E. Guthe and S. G. Morley of the Carnegie Institution have investigated the archaeology of Guatemala, while local excavations in New York State and Wisconsin were conducted respectively by Messrs. A. C. Parker of the State Museum in Albany, and A. B. Skinner of the Public Museum of Milwaukee. Father W. Koppers, one of the editors of *Anthropos*, has started on a field trip to the Terra del Fuegians of southernmost South America.

Through the initiative of Drs. Henri-Martin and Charles Peabody there has been established near La Quina, the famous Mousterian station, an American Foundation for Prehistoric Study in France. American students of archaeology will thus have an opportunity to get training in the technique of their science on a typical Old World site. Professor George Grant MacCurdy is the first director of the Foundation. In the new Estonian University of Dorpat Dr. A. M. Tallgren, noted for his researches into Siberian archaeology, has become professor of prehistory.

A number of noteworthy scientific gatherings merit chronicling. The Institut International d'Anthropologie organized by the Ecole d'Anthropologie de Paris met in Liège, July 25-August 1, special attention being given to prehistoric archaeology. The British Association for the Advancement of Science held a meeting in Edinburgh, September 7-14, and Section H (Anthropology) made a special point of discussing the racial origin of the Scotch people. An international Eugenics Congress met in New York, September 22-28; it was attended by a number of notables from abroad, such as Major Leonard Darwin and Lucien March. At the Philadelphia meeting of the American Anthropological Association, Dec. 27-28, 1920, a fundamental change of its official personnel occurred, Dr. William C. Farabee being elected president, Dr. A. V. Kidder secretary, and Dr. John R. Swanton editor-treasurer. The

1921 meeting of the Association was held at the Brooklyn Institute of Arts and Sciences, December 28-30, in conjunction with the American Folk-Lore Society. A proposed amendment to the Constitution authorizing the establishment of regional branches was booked for discussion.

Anthropologists mourn the death of Miss M. A. Czaplicka, lecturer on anthropology in Bristol College, and esteemed for her Siberian researches, especially her book on *Aboriginal Siberia* and her trip of exploration to the upper Yenisei, of which so far only a popular account has been issued. Professor Rudolf Pösch, the Viennese anthropologist, known for his discussions of the Bushman and Papuans, and Professor Émile Houzé of Brussels are also to be numbered among the losses of the year. Of American scholars, Charles Pickering Bowditch, patron of Central American investigations, in which he himself participated, passed away on June first.

ANTIGUA. See LEeward ISLANDS.

ANTIMONY. Except for the antimony in hard lead, no antimony was produced in the United States from domestic ores since 1918, according to the United States Geological Survey, Department of the Interior. This situation, however, is not considered altogether unfortunate, as our meagre supply of ore may thus be kept for a time when we will need it, perhaps as urgently as we did during the World War. Hard lead carrying about 14 per cent of antimony is a by-product of the smelting of the precious metals, and the quantity of hard lead produced in 1920, which was 12,535 short tons, carried 2033 tons of antimony and was obtained from both domestic and foreign ores. A small quantity of metallic antimony was produced by one smelter from both foreign and domestic ores, and about 5000 tons of secondary antimony was recovered from old alloys, scrap, and dross.

The average price of antimony in 1920 was 8.49 cents a pound. The highest price, which was reached in February and March, was 11 5/8 cents, but owing to large imports and heavy offerings of war scrap and shrapnel by several governments, the price fell in December to 5½ cents, the lowest in more than six years.

The imports for consumption, calculated in terms of metallic antimony, were 11,768 short tons, as compared with 7867 tons in 1919. Their value was \$1,435,823. They consisted of 1709 tons of 40 per cent ore, 1375 tons of 75 per cent matte, 9817 tons of metallic antimony, and 298 tons of 80 per cent antimony oxides and other compounds.

The general imports were 12,474 tons of antimony and 1709 tons of ore containing 682 tons of antimony. They showed an increase of about 76 per cent as compared with those of 1919. The metal came mostly from China and Japan and the ore from China, France, and Bolivia. The imports of metal from China increased 175 per cent over those of 1919.

The imports of type metal were 14,944 short tons, or more than twice those of 1919. Their antimony content was assumed to be 2063 tons, or about 14 per cent.

The exports of foreign antimony from the United States in 1920, mainly to Canada, amounted to 448 tons, more than double those of 1919.

About 1877 short tons of antimony were in bond in December, 1920, as compared with 1200 tons for December, 1919.

The world's production of antimony in 1920 was about 14,000 metric tons, as compared with 11,900 tons in 1919. Nearly all of it was produced in China, Mexico, and France. For several years China has produced more than 60 per cent of the world's supply.

The world's average annual peace-time consumption of antimony, not including that in antimonial lead, is about 22,000 metric tons, of which the United States consumes 7000 tons. The United States also uses annually about 2100 tons of virgin antimony contained in domestic antimonial lead and 3500 tons of secondary antimony recovered from old alloys, scrap, and dross, a total of 12,600 tons.

ANTI-SALOON LEAGUE OF AMERICA.

This organization was established in 1895 by the coalition of the Anti-Saloon Leagues of five States. It is a national federation of organizations for the purpose of exterminating the beverage liquor traffic. In 1921 there were 49 subsidiary State leagues, and it had affiliations with 40 other national temperance associations. More than a thousand representatives conduct the work of the League. Legislation affecting the operations of the League during the year consisted of the Volstead Enforcement Bill No. 2, adopted by Congress in June. It prohibited the use of beer as medicine and limited the alcoholic strength and quantity of wine that may be prescribed. Also in June the Willis-Campbell bill was adopted; this contained a provision prohibiting the manufacture or sale of beer for medicinal purposes. The work of the League throughout the year was concerned chiefly with the enforcement of these and other provisions of the Volstead Act. It is claimed that great steps have been made in the movement during 1921. Drunkenness is not the chief harm of alcohol, according to the League, but the poisoning which it causes. The *Anti-Saloon Year Book* published for 1921 shows complete statistics in the matter. They indicate considerable decrease in the number of deaths throughout the country from alcoholism. Tables furnished show a decrease also in the number of drug addicts and persons committed to insane institutions. The number of tubercular cases resulting from the use of alcohol was less than ever before. As to the economic aspects of prohibition, the League pointed to the conversion of many breweries and distilleries into prosperous industrial establishments and the increased valuation of saloon and hotel property. The hotel business experienced an era of prosperity under prohibition, according to the report, reflected by a 20 per cent increase in the quantity of food ordered by its patrons. To it also, the League attributed the astonishing figures recorded of industrial savings in the United States. Of replies from 526 labor leaders to questionnaires as to whether prohibition was a benefit to the workingman and his family, 345 replied in the affirmative. Figures compiled by the League showed a slight increase in 1920 of arrests for all causes, but a great decrease in the number of arrests for drunkenness. It was denied that a crime wave had been the result of prohibition, but that it was due to the return of soldiers and a general depression and prevailing unemployment. A marked improvement in morals and public welfare was claimed, due largely to prohibition. In June, 1920, there were in the United States 583

operating breweries, as compared with 669 the previous year, and 37 industrial alcohol plants compared with 47 distilleries in 1919. The quantity of fermented liquor fell from 27,712,648 barrels in 1919 to 9,231,280 barrels in 1920.

The officers of the League for 1921 were: Bishop Luther B. Nicholson, president; Hon. S. E. Nicholson, secretary; Rev. P. A. Baker, general superintendent; Ernest H. Cherrington, general manager of publishing interests. The official organ of the League is *The American Issue*, published weekly; there are 27 subsidiary and State periodicals. The publishing house and executive are offices in Westerville, Ohio. A vast amount of literature is turned out daily. The legislative committee has its headquarters in the Bliss Building, Washington, D. C.

APPENDICITIS. It is commonly believed that appendicitis is largely a condition under surgical control. Many operators can show long series of operations without deaths and still longer ones with very slight mortality rates. Individual contact with appendicitis patients in large cities reveals that one's friends and acquaintances usually recover from their operations, where once on a time death was often the outcome. Nevertheless the returns of the U. S. census for 1920 show that deaths from this cause are on the increase. In the registration area of continental United States for 1919 the number of deaths from this cause was 10,029, while in 1920 the figure was 11,702. The number of deaths per 100,000 population was 11.8 in 1919 and 13.4 in 1920, so that the increased number of deaths is not due to mere growth of population. It should be remembered that the mortality from this disease in general hospitals, in which many advanced and hopeless cases are subjected to operation, is much higher than is commonly believed; and that counting patients who come to operation with those who die in the absence of surgical intervention the case mortality must be high to account for nearly 16,000 deaths annually—for that is about the figure calculated for the entire United States, registered and unregistered. The cause of the increased death rate during 1920 is a complete mystery, save that it must depend on increased frequency of occurrence. It appears, however, that all of the diseases of civilized man, as contrasted with those of the savage, show a similar increase, and this slow and steady increase in the death rates of heart disease, arteriosclerosis, diabetes, Bright's disease, etc., etc., even in the presence of improved sanitation, will probably continue with the march of civilized progress.

ARABIA. The peninsula in southwestern Asia, south of Syria, Mesopotamia and the Persian Gulf; area estimated at from 1,000,000 to 1,200,000 square miles, the higher figures including the Syrian desert and the Sinaitic Peninsula; population variously estimated at from 5,000,000 to 7,500,000. These figures are not trustworthy owing to the nomadic habits of a large part of the population, which consists of Bedouin tribes; and by some observers the figures are believed to be much too high, and the population is placed as low as 4,000,000. Great tracts of the country are unsettled, and others are only half settled by wandering tribal communities who obey the authority only of their own chiefs. This is true chiefly of the hinterland of Yemen, the interior of Oman, the Asir Highlands, and the northern

outskirts of the Nefud desert. Stable communities, however, inhabit the oases of central Arabia and the fertile coast regions. The divisions of the country of late years have been defined as follows: The Kingdom of Hejaz or Hedjaz, with uncertain frontier, but an estimated area of 100,000 square miles, and an estimated population of about 750,000. Politically and religiously it is the chief principality of Arabia, being the seat of the Holy Places, namely, Mecca, with a population of 80,000, and Medina, with a population of 40,000. It was formerly a part of the Turkish empire, constituting the vilayet of Hejaz, but during the war became an independent kingdom under British influence. (2) The Emirate of Nejd and Hassa, the stronger of the two principalities in central Arabia, with its capital at Riyadh. It is the seat of the Saud dynasty whose authority has increased since the beginning of the war. The population is estimated at 250,000. (3) The Emirate of Jebel Shammar to the north of the above and formerly within its jurisdiction, but since the middle of the nineteenth century, an independent region under the rule of the Rashid dynasty; capital, Hail, seat of the Emir, Abdullah Ibn Mitah in 1921 who succeeded on the assassination of his father in May, 1920, though only thirteen years of age. The population is estimated at 200,000. (4) Principality of Asir, lying on the western coast between Hejaz and Yemen, with its capital at Sabiyah. It has been under the Idrisi dynasty, the ruler at the beginning of 1921 being Mohammed Ibn Ali el Idrisi, but without effective control over the highland region which was largely independent. Population estimated at 1,000,000. (5) The Emirate of Yemen, tracing descent from the daughter of the Prophet. Within this region lies a considerable tract of cultivable land, and agriculture is carried on with success. The area is estimated at 75,000 square miles and the population at about 1,000,000. The capital, Sana, has a population of about 25,000. The chief ports are Mocha and Hodeida, with a population each of about 40,000. Comprised also within the peninsula of Arabia are the British sultanates of Oman and Koweit and the Emirate of Kerak or Trans-Jordan. See ADEN, and OMAN, and KOWEIT.

HISTORY. As noted in the preceding YEAR BOOK the Kingdom of Hejaz was founded during the war (1916), when supported by the British, Hussein, Sherif of Mecca, threw off the Turkish power and was crowned king. Owing to the line taken by political ambition and rivalries, Hejaz was the subject of much discussion during the years following the war, and not much attention was given to other parts of Arabia. A brief review of events more important to the country as a whole than those of the Kingdom of Hejaz is given in the preceding YEAR BOOK.

The British Colonial Office in the autumn announced that the Arabs in the central Arabian Emirate of Nejd had chosen as sultan the Emir Bin Saud who had expressed gratitude for the British friendship and a desire for friendly relations with the new state of Irak.

During the autumn of 1921 it was announced that service had been resumed on the Hedjaz Railway between Haifa, an important port on the Mediterranean, and Amman, the capital of Transjordan, 162 miles distant. Trains

accordingly were in operation for the first time since the beginning of the war. This line passed through an important grain-producing territory, and was expected to open up a profitable market for goods of foreign manufacture, particularly agricultural hardware and textiles. Haifa itself, besides being a port of call, was the terminus of five railways, and also was being considered as the terminus of a proposed oil pipe line from Mesopotamia.

ARBITRATION, INTERNATIONAL. See INTERNATIONAL PEACE AND ARBITRATION.

ARBITRATION AND CONCILIATION. See LABOR ARBITRATION.

ARCHÆOLOGY. The further the war recedes into the distance the more activity is noticeable in archæological exploration.

EGYPT. In Egypt the most important work has been done respectively by the Americans and the English. The joint expedition of Harvard University and the Museum of Fine Arts of Boston has thrown much light on the civilization of Ethiopia. At Napata in the Sudan, at the foot of the Fourth Cataract, the royal cemeteries were found outside the city. At Nuri a group of pyramids were examined and found to be the tombs of the kings and queens of Ethiopia from 660-250 B. C. The burial chamber of King Tihaqa, mentioned in the book of Isaiah, was uncovered among others. It was discovered from the digging that the Ethiopian dynasty was of Libyan origin and had originated in a tribe of nomads who had entered the country about 900 B. C. and had eventually conquered Egypt. At Giseh, Reisner, who was in charge of the expedition, excavated the two temples belonging to the third pyramid. Nine very fine statues were recovered. Besides, a head of Chefred and eight portrait heads of his children were discovered. At Kerma, in the Northern Sudan, the investigators found the cemetery of an Egyptian garrison. These men had been here from the time of Sestris III to that of the Hyksos kings. It was at Kerma also that Reisner found one of the finest of the private statues of the middle empire in the likeness of Lady Gennuwy. At Barkal the burial chamber of the pyramids was found.

The important work of the English in Egypt has been on the site of Tel El-Amarna where the Egyptian Exploration Society has been engaged in carrying on the excavations interrupted by the war. Perhaps one of the most astonishing things in connection with the place was the discovery of streets that in some cases were as wide as 180 feet. The digging has been of especial value in throwing light upon the private house of the Egyptian. The typical house of the medium or larger size took a very definite plan. In the centre of the building was a square living room which received its light from a clearstory. In it was a large clay brazier for heating and a limestone ablution slab for the ceremonial washing of the hands and feet. Out of this room led at least four doors; on the north into a long narrow room lighted by two large windows which were so big as to leave half of the room open; on the west side into a similar room; on the third side another door led to a staircase which went up to the roof; and on the fourth side was a door which gave into various rooms at the back of the house. As a rule the house was entered by two doors—

one on the north and one on the west. The roof was made by first laying roughly cut beams from wall to wall, covering these with twigs, matting, and mud. Every house had its own garden with its well and summer house. Around the garden was a high wall. Trees were planted in pits filled with river mud. Near the house were the granaries which were circular structures made of sun-dried bricks. The objects found in these houses were those of every day use, such as bronze axes, knives, needles, pins, parts of hand looms, and bits of pottery. In the tomb-chapels in the foothills the essential features of these structures were found to be an outer and an inner court, and a shrine with niches. Evidence turned up during the year to show that Tel El-Amarna was occupied sporadically from time to time.

SYRIA AND PALESTINE. At 'Abu-Ghooh an ancient Palestinian tomb was examined. The tomb is excavated in the face of a ledge and consists of a depression surrounded by a bench on which the dead were laid. At Askalon the Palestine Exploration Fund under Garstang began its work as early as the summer of 1920. Near the surface was discovered the remains of a Crusaders' church and parts of a Byzantine church building. Here also was found the foundation of a temple or some other public building built in good Roman style. From the same area were recovered two remarkable statues representing Fortune and Victory. A pool was uncovered which seems to be the one mentioned by Antoninus Martyr.

GREECE. During April and May the American School of Classical Studies in Athens conducted a bit of excavation at Zygouries, a low mound about halfway between Corinth and Mycenæ. Although the place was small Blegen who was in charge of the work uncovered most thoroughly a small town which is of great value for the Helladic period of Greek history. More than 500 more or less complete vases were found among which early and late Helladic fabrics are especially richly represented. Numerous stone foundation tell of the architectural habits of this early period. Many houses were laid bare. Generally speaking they all contained a square chamber, which differs much from the rectangular megaron of Mycenaean days. The streets were crooked and narrow. Among the finds should be mentioned a small female figurine, a button seal, both of terra cotta, and a fine bronze dagger. The most important Middle Helladic find came from a cist grave and consisted of a necklace of beads of crystal and glass, a number of coils and rings of bronze for the hair (?), and a couple of pins and vases in dull paint decoration. Particularly interesting was the finding of a potter's shop containing a fairly complete stock of wares. All date in the late Third Helladic. Most were in fragments due to fire.

At Mycenæ the British School began its second campaign on May 22. The purpose of this year's campaign was to examine the Acropolis and the graves. The Ramp House, south of the royal grave circle, has been uncovered and found to be of the megaron plan. It dates about 1400-1100 B. C. Under it were found bits of frescoes of the 1st or 2nd Late Helladic (1600-1400). Excavations at this place showed that the famous circle of graves was originally part of a cemetery that extended down the hill. This cemetery was used from Middle Helladic times down to 1400 B. C.

An examination of the palace shows that an earlier one existed there about 2200-1800 B. C., which antedates the time of the palace at Tiryns. This early Mycenaean palace was replaced by a later one of the first Late Helladic period, and the latter by a much larger one. The palace in its elaborate arrangements reminds one of the palace at Knossos. Near the beehive tombs three more of the same kind were discovered. Another group of more primitive chamber tombs dating from the Late Helladic Period was found on the northern side of Kalkani Hill. In one of the burials was found a stirrup-cup of the same style as those found at Tel El-Amarna. From the finds at Mycenae it appears that while the earliest settlement goes back to the Bronze Age it was not until about 1800-1600 that the city became important. By the fourteenth century, after the fall of Knossos it became the chief centre of culture in that part of the world.

ITALY. In Rome, under the Palazzo Caffarelli, excavations have brought to light remains of the temple of Capitoline Jove. These consist of parts of an imposing temple terrace with parts of its huge supporting walls, and a few bits of architectural sculpture to the southwest of the house of Livia. Under the Villa Torlonia on the Via Nomentana has been found an interesting Jewish catacomb dating in the second or third century. On the Via Salaria the cemetery of Pamphilus has come to light, and two previously unexplored galleries have been examined. The loculi and the galleries themselves were found to be in good condition. Outside the city, near the Porta Maggiore an important hypogeum was discovered. It lies about one half mile from the famous Basilica. It dates late in the second or early in the third century. The upper part contains a sepulchral chamber. Down to this leads a staircase which ends on a landing just outside. To the left of the landing is the entrance into the main chamber. This room is 15 by 17 feet and has a vaulted roof which has a light shaft in the centre. On the right and left walls are *arcosolia*; the one opposite the door has been destroyed. Besides the two rooms there are several galleries and chambers. Some very interesting paintings were found on the walls and ceiling of the main chamber. One group of figures seems to represent the twelve apostles.

At Ostia between the great *Horrea* and the main street a series of shops has been found. Progress too has been made in clearing the forum of the town. At Civita Lavinia remains of a temple with a triple cella like that of the temple of Apollo at Veii. It dates somewhat later than the latter building, being of the 4th or 5th century. At Bologna the widening of the streets brought to light remains of pavement of the old Roman city. This road joined the Via Emilia at the edge of the city. In Siena vestiges of baths and what appear to be other public buildings have been uncovered.

In Sardinia excavations carried on on the plateau of S. Maria della Vittoria discovered an open-air shrine in the form of a small rectangular building with entrances on the west and east. In front of the latter were three altars.

At Selinus in Sicily excavations have been made in the temenos of Demeter Malophores. The site is to the west of the town. It was found that an entrance to the sacred area was afforded by a porch on the left hand side of which was a smaller temenos, in which were a number of buildings.

Among these was a temple of peculiar plan with an arched niche in the back wall. In the western corner of the large temenos the excavators found many archaic terra cotta statuettes as well as fragments of Corinthian and black figured ware. Unfortunately no chronological sequence could be made out.

In Syracuse many important finds have been made. Near the amphitheatre two foot-rules of bone and bronze came to light. These objects are very rare. In the Canalicchio necropolis several Hellenistic tombs were opened. At Megara Hyblaea an archaic Doric temple was discovered, while at Assaro a very fine Hellenistic bronze bucket, one of the best bronzes of that time, was recovered.

ARCHITECTURE. Contrary to general hopes and expectations, the close of 1921 did not see a general resumption of building activities in this country on a normal or prewar basis. Marked reductions in many building materials, it is true, have taken place, but labor remained throughout 1921, a discouraging element in the building field. Answers to questionnaires sent out to Chambers of Commerce in all cities of more than 10,000 population, to Real Estate Boards and members of Federal Reserve Banks indicated that both labor and materials are still too high to encourage anything like a "building boom." Concensus of local opinion, however, seemed to show a firm belief that 1922 will usher in an unusually active period.

An increasing demand for the services of draftsmen in the early autumn of 1921 indicated a gradual increase in building, many small architectural offices reporting business progressing in full volume in small residential work. This type of work, in the vicinity of New York, received a considerable impetus from tax-exemption provisions in the local legislature. General construction costs, moreover, at the close of 1921, showed a 30 per cent drop for the year, representing something like 35 per cent under the peak reached directly after the war.

The tax-exemption provision, in brief, provided for a ten-year exemption on all residential construction except hotels, to the extent of \$5000 of appraised valuation per family, with a limit of \$1000 per room on apartments smaller than five rooms. The provision came into effect Feb. 1 1921, but was made retroactive from April 1, 1920, to extend for a period of two years from that time.

This provision, combined with the urge of necessity and the actual decrease in building costs, resulted in a great increase in residential building operations. In the five boroughs of greater New York, for example, in the four months after Feb. 1, 1921, plans for 20,897 homes were filed, representing an increase of 215 per cent over the same period of the preceding year. The greater proportion of buildings were for moderate cost one-and two-family houses. The corresponding impetus in apartment house building is seen in the filing of 447 plans in the same period, representing a 674 per cent increase over the same period the year before.

In actual figures, the tax-exemption provision represents a saving of \$1400 per family for a period of ten years, and has resulted in millions of dollars of investment in residential construction. Combined with general decreases in construction

cost, this type of building has come back to a point not far from prewar levels. Another result has been the release of large amounts of mortgage money for moderate cost residential construction. In response to an appeal by Mr. Hoover, that institutions holding peoples' savings should lead in loaning money for home building, eleven New York companies, including banks, trust companies and insurance companies formed combinations for the immediate loan of three million dollars on small houses.

In the Borough of Queens, in New York, the apartment buildings called Jackson Heights have demonstrated that the coöperative ownership plan, originally tried out in very expensive apartments, is a practical plan for the moderate cost apartment as well.

In many New England industrial towns, plant owners have been obliged to undertake housing developments in order to have employees to operate plants. Housing has become a question of plant equipment rather than paternalistic philanthropy, and architects have shown keen interest and a high order of ability in developing solutions of the industrial housing problem.

For some years to come the outstanding need will be for more homes, and as a constructive means toward this end there are innumerable "Own Your Own Home" expositions and clubs and Chamber of Commerce Committees. Many of these expositions feature competitions among architects for four, five, and six room houses in brick, frame and metal lath construction.

The Architects' Small House Bureau, of Minnesota, organized several years ago, succeeded in directing nation-wide attention toward the problem of securing better designed small houses, and its first modest advertising was widely noticed and quoted by the Press throughout the country. Among other results, the Southern Pine Association became interested, and coöperated with the Bureau in the publication of a book of a hundred house plans, with full working drawings, specifications, and bills of material, for houses of three, four, five, and six rooms. The Southern Pine Association undertook to pay for publication, and to carry on a national campaign of advertising. The designs cover all typical kinds of construction, brick, hollow tile, and stucco, as well as frame. The Bureau, utilizing these plans and specifications, aims to prove to the public that architecture is a real profession, and that an architect can and does give real service. It is hoped that Regional Bureaus may be established, supplying work to many architects, and improving the general standard of design for the small and moderate sized house throughout the country. Mr. Robert D. Kohn, Chairman of the Congress of the Building Industry, reports that the idea is widely welcomed in the West. In some cities contractors had already approached architects in an effort to get together. Steps are being taken to organize local groups in Philadelphia, Boston, New York, Omaha, Minneapolis, Seattle, Portland, San Francisco, Los Angeles, Dallas, Louisville, and New Orleans.

In work other than residential work, it is difficult to draw many general conclusions, because of special interests involved in construction. There has been much re-figuring in architects' offices on buildings, the cost of which was too high last year. The most hopeful sign in this

connection is a different attitude on the part of contractors and subcontractors, who now show a real anxiety to cut costs.

The Architectural Forum of January, 1922, gave some interesting figures on postponed building operations. In normal years the total estimated cost of projected works is 50 per cent in excess of amount of contracts actually awarded. In 1919 it was 67 per cent in excess; in 1920, 92 per cent in excess.

The disclosures of the Lockwood Committee, investigating the corrupt and coercive conditions existing in many "building rings," and seriously restricting the fair and normal supply of materials, as well as the conduct of labor, have corrected many abuses which were highly detrimental to the resumption of building activity after the war. The ringleader of the malefactors in the building industry, Brindell, was sentenced to a prison term of five to ten years, and heavy fines were imposed upon others who carried on their business in restraint of trade. It appeared in the course of the investigation that there were rigidly organized "rings" in the thirty or more trades and materials connected with building, and these "rings" compared estimates on "competitive" work with a view to keeping all bids up to the maximum that the traffic would stand. Labor, too, was so manipulated by a few powerful chiefs that it was actually possible for Brindell to ask a \$50,000 tribute as "strike insurance," from the builders of the Cunard Building.

As a result of the Lockwood investigation, legislation was proposed for control and regulation of the building industry. A bill was introduced by Senator Calder for the creation of a Bureau of Construction of Housing in the Department of Commerce.

Similarly, in Chicago (Sept. 7, 1921), Judge Landis handed down a decision amounting to an Emancipation Proclamation for the building industry in Chicago. In a controversy between the Chicago Building Trades Council and the Building Construction Employers' Association, Judge Landis ruled that cost of labor, both skilled and unskilled, be reduced 20 per cent, that the owner, who pays the bills, be allowed a representative upon his own work, that an employer may use non-union labor, when the supply of union labor is inadequate, that labor "rulings" designed to make work last as long as possible be abolished, and that artificial provisions necessitating representatives of many different trades on a simple job be also abolished.

This decision of Judge Landis was aimed to strike at the root of much of the recent trouble with labor. Troubles, and high cost have not been entirely due to rate of pay, but to restrictive rules and absurd regulations which call for an unnecessary number of men to do a given piece of work, and which divide small operations among many different trades.

Much may result from another movement, designed to meet the difficulties experienced by architects in dealing with the varying requirements of the building codes of different cities. Professor Woolson, of the National Board of Fire Underwriters is engaged with a committee appointed by Secretary Hoover to establish national standards of building practice and regulation. Through local Chapters of the American Institute of Architects, increasing activity is shown in this direction by

architects in general. In Minneapolis the American Institute furnished the chairman who brought about a housing code which proved to be so excellent that it now serves as a model for twenty or thirty other municipalities. These movements are of great significance in that they show an increasing professional consciousness on the part of architects, and a tendency to coöperate in various measures which are aimed toward community betterment, and the correction of many undesirable conditions in the building industry.

In England an interesting development has been in operation in the form of Building Guilds, designed to overcome the serious labor troubles which came in the wake of the war. A National Building Guild is now formed, and all local bodies have become a part of it. One reason for its organization was the sudden abandonment by the government of its building programme. The slogan of "Economy" took the place of the wartime "Houses for Heroes" slogan, and the burden of financing and construction of the many needed homes fell upon citizen enterprise and industry.

As early as January, 1920, a "Guild Committee" was organized by the building trades unions of Manchester. The guild proposed to undertake housing projects without the intervention and profit-taking of private contractors. By May the Manchester experiment had proved so effective that a similar guild Committee was formed in London, and 800 working-class houses were soon under way in the two cities. In London the cost of the houses (£950) is £100 under any private contractor's bid, representing a saving of at least 10 per cent, with promise of still greater saving when the Guild becomes more thoroughly organized. There is no lack of work, and it soon became apparent that the Guild would become nationally effective. It is believed that the men will work better under the self-governing provisions of the Guild than under private capitalism, and the appeal is for new ideals and a new spirit in industrial organization. The Guild ideal, moreover, is found to encourage the old spirit of honest craftsmanship, and the desire to do good work.

In May, 1921, the Building Guilds in England were reported as being at work on seventeen large and important housing contracts for public authorities, and entering the field of privately owned houses. As might be expected, the Guild idea met with considerable opposition from certain interests, but now bids fair to become a far-reaching force in the world of industry. In an address to the Master Builders in Manchester Mr. Stephen Easton said: "One thing which the Guilds had demonstrated was that many workmen, (in contract work) were doing less than half a day's work for a full day's wage. It was boasted that in Guild work a man would lay 700 to 800 bricks in a day, while on the other housing schemes the amount laid was less than half that."

The years 1920 and 1921 brought five new Chapters into the American Institute of Architects: Arkansas, Florida, Kansas, Montana, and Utah. At the 54th Annual Convention of the Institute in Washington (May 11, 12, 13) President Kendall commented upon the extraordinary growth in membership during 1920.

Recent French recognition of American architects is shown by the fact that Americans have been chosen to plan the restoration of Rheims, and to rebuild Louvain—the latter undertaking

being assigned to Mr. Whitney Warren. The planning of New Constantinople, also, one of the largest and most difficult problems confronting the European architect, has been referred to American architects, and, for the first time, American architects were invited to make an extensive exhibit of American architecture at the Paris Salon, which opened in May, 1921.

Without doubt the most interesting architectural development affecting the tall building is the radical change in its profits as necessitated by the recent New York "Zoning Laws" which require a stepping-back of the mass as it exceeds certain heights. This question is fully treated in *The Architectural Forum* of October, 1921, in an article by Aymor Embury II, instancing the following recent examples of important buildings affected by the new regulation: The Association Building (Starrett & Van Vleck), The Heckscher Building (Warren & Wetmore), The Aronson Building (Schwartz & Gross), The Garment Centre Buildings (Walter M. Mason), The Fisk Building and the Liggett Building (Carrere & Hastings). To these might now be added the colossal building by the same architects, projected for the Standard Oil Company, the proposed new Murray Hill Hotel, the new addition for the store of R. H. Macy & Company, and the proposed Borden Building (Buchman & Kohn). The greater part of the October, 1921, issue of *The Architectural Forum* is given over to the subject, which is also dealt with in an article in *The Century Magazine* for September, 1921, and in an interesting group of drawings by Hugh Ferriss, shown by Helnite & Corbett, architects, in the 1922 Exhibition of the Architectural League of New York, illustrated in its Year Book.

Among important buildings completed in 1921 should be recorded the Cunard Building (Benjamin Wistar Morris), the S. W. Straus Building, and the Ambassador Hotel (Warren & Wetmore).

At the 37th Annual Exhibition of the Architectural League of New York, which was held at the Fine Arts Building from Feb. 5 to March 4, 1922, much interesting work was shown. One of the most important competitions shown was that for the Kansas City Victory Memorial, the winning design, by H. Van Beuren Magonigle being exhibited with several other entries.

A fine showing was made by the photographs and a complete scale model of the recent work of James Gamble Rogers for Yale University—The Memorial Quadrangle and the Harkness Memorial—an exceptional rendering in the English Collegiate style.

An attainment of the "large effect," now becoming characteristic of the architecture of this country, was seen in the splendid building for the Pennsylvania Railroad's Chicago Freight Station (McLanahan & Bencker), and in the U. S. Army Supply Base in South Brooklyn (Cass Gilbert). Both these buildings express their large essentials without any attempt at ornamental detail, and both are admirably architectural in quality.

Residential architecture did not appear in great volume in this exhibition, but such examples as were shown indicated a continuation of the tendencies which were evident last year—the most promising tendency being toward a greater sincerity and simplicity. The meretricious and artificial were conspicuous by their absence, and there was a distinct feeling that architects

are coming more frankly to grips with the fundamentals of their varied problems, and are both molding and following present tendencies toward a clean-cut and logical architectural technique.

Despite many unfavorable conditions obtaining since the war, a fair number of really admirable buildings have been completed or projected, and the outlook for the coming year is better than for several years past. According to reports received from a thousand architectural offices in various parts of the country covering prospective and definitely anticipated work, 1922 is to be a far busier year than 1921.

ARCTIC REGIONS. See POLAR RESEARCH.

ARELLANO, C. S. See NECROLOGY.

ARGENTINA. A south American republic, lying on the eastern coast of the southern part of the continent; capital, Buenos Aires.

AREA AND POPULATION. The area is 1,153,119 square miles, and the population, Dec. 31, 1919, was 8,533,332 as compared with 7,885,237 in the census of 1914. The following table of population by provinces and territories is taken from the *Salesman's Year Book* of 1921:

Federal District, Provinces and Territories	Area: English sq. miles	Popula- tion Dec. 31, 1919	Popula- tion Census 1914
Federal District			
Buenos Aires.....	72	1,649,977	1,575,814
Martin Garcia Island.....			783
Provinces			
Buenos Aires (La Plata).....	117,777	2,279,500	2,066,165
Santa Fé.....	50,713	983,840	899,640
Córdoba.....	66,912	787,748	735,472
Entre Rios (Parana).....	29,241	461,570	425,373
Corrientes.....	33,535	364,818	347,055
San Luis.....	29,035	128,087	116,266
Santiago del Estero.....	55,385	293,501	261,678
Tucumán.....	10,422	350,973	332,933
Mendoza.....	56,502	307,560	277,535
San Juan.....	37,865	128,993	119,252
La Rioja.....	37,839	84,448	79,754
Catamarca.....	36,800	107,216	100,391
Salta.....	48,302	150,796	140,927
Jujuy.....	14,802	78,667	76,631
Territories			
Misiones (Posadas).....	11,511	60,394	53,563
Formosa.....	41,402	21,328	19,281
Chaco (Resistencia).....	52,741	50,853	46,274
Pampa Central (Santa Rosa de Toay).....	56,320	119,726	101,338
Neuquén.....	40,530	32,472	28,866
Rio Negro (Viedma).....	79,805	46,602	42,242
Chubut (Rawson).....	93,427	27,722	23,065
Santa Cruz (Gallegos).....	109,142	11,355	9948
Tierra del Fuego (Ushuaia)...	8299	2548	2504
Los Andes (San Antonio de Los Cobres).....	34,740	2628	2487
Total.....	1,153,119	8,533,332	7,885,237

According to the statistics published in the June, 1921, number of the *Revista de Economía Argentina*, the estimated population of the country on Dec. 31, 1920, was 8,698,516. The number of immigrants in 1920 was 188,688, and of emigrants, 148,907. The number of agriculturists, merchants, manufacturers, and workmen of all classes was 2,355,130.

The movement of population 1918 was as follows: Births, 271,980; deaths, 146,775; immigrants, 50,662; emigrants, 59,908. The number of immigrants by sea between 1857 and 1917 was 4,812,729. The population of the larger cities was as follows: Buenos Aires, the capital, (1914) 1,575,814; estimated, Dec. 31, 1920, 1,674,000; Rosario, estimated in 1918, 235,000; Córdoba, estimated Nov. 30, 1918, 156,000; La

Plata, estimated, 119,000; Avellaneda, 105,000, Tucuman, 100,000.

EDUCATION. Primary education is free and compulsory between the ages of six and fourteen, and is subsidized by the general and provincial governments. The progress of education during recent years is indicated by the following figures for national schools: In 1906, there were 291 schools, with 357 teachers and 26,152 pupils; in 1916, 1385 schools with 2640 teachers and 128,488 pupils; in 1920, 2722 schools with 4901 teachers and 218,326 pupils. The National University of Córdoba in 1920 had 1603 students divided as follows: Law, 345; medicine, 840; dentistry, 157; pharmacy, 85; science, 104. Secondary education is under the general government and is carried on by 42 national schools, with 11,022 pupils and 1244 teachers, and by 33 private institutions, with 2959 pupils and 398 teachers. There were also 59 military schools, 82 normal schools, 37 schools for special instruction, commerce, industry, art, etc. Higher education is supplied by the following national universities: Buenos Aires, La Plata, and Córdoba, together with a new university, founded in 1920 at Rosario, known as the University of the Litoral; and the provincial universities at Santa Fé and Tucuman. There are museums at Buenos Aires and La Plata; a national meteorological bureau at Buenos Aires; and a national observatory at Córdoba. The budget for education in 1920 totaled 71,885,335 paper dollars.

PRODUCTION. The main sources of wealth are agriculture and stock-raising, the area available for these purposes being placed at 401,000,000 acres. In 1918-1919 the total area under cultivation was 59,716,550 acres. The following table shows the acreage and production of leading crops in metric tons in 1920-21:

Crops	Acreage	Production
Wheat.....	15,004,306	6,070,000
Oats.....	2,006,315	830,000
Corn.....		
Flax.....	3,482,817	1,400,000

The figures for corn for 1920-21 were not available but in 1919-20 the acreage under corn was 8,180,000 and the production in 1918-19 was 5,696,150 metric tons. Farm animals in 1920 numbered: Cattle, 27,392,126; horses, 9,366,455; sheep, 45,303,419; pigs, 3,227,346; mules, 565,069; asses, 260,157. Crop estimates for 1920-21 were as follows: Wheat, 5,015,000 tons; linseed, 1,082,000 tons; barley, 691,000 tons. There has latterly been a rapid development of rice culture, which has been aided by the government, the area under cultivation increasing from 3021 hectares to 10,654 in 1920. The crop in 1919-20 was 18,500 tons. The oil fields though discovered thirteen years before were just beginning in 1921 to draw foreign capital, and various Dutch, French, German, and English interests were competing there for concessions. There was also a certain amount of Swiss and Belgian capital interested in the oil fields. In the summer it was reported that German bids for engineering work were far below the American estimates and that many American articles were being driven out by German competition. Ocean traffic between Argentina and Russia was renewed, September 2,



Architect James Gamble Rogers

**TOWER OF THE HARKNESS MEMORIAL QUADRANGLE
AT YALE UNIVERSITY**

a vessel leaving the capital for Russia with a cargo of flour on that date.

COMMERCE. According to the Bureau of General Statistics, foreign trade in 1920 was as follows: Exports, 1,007,000,000 gold pesos; imports, 850,000,000 gold pesos; the trade balance favorable to the country thus being 153,000,000 gold pesos. The chief exports were wheat, corn, linseed, and oats.

The total imports into the United States from Argentina for 1921 were estimated at \$60,000,000, as compared with \$207,776,868 for 1920; and American exports to that country in 1921 at about \$110,000,000, as compared with \$213,725,984 in 1920.

The following table shows the quantities of exports from Argentina during the first 10 months of 1921, as compared with those for a similar period in 1920:

EXPORTS FROM ARGENTINA DURING FIRST 10 MONTHS OF 1920 AND 1921

Articles	1920	1921
Wheat..... tons.	5,029,528	1,591,255
Corn..... do.	3,444,032	2,395,324
Linseed..... do.	897,906	1,129,403
Oats..... do.	380,417	362,574
Barley..... do.	49,088	45,855
Flour..... do.	172,969	39,665
Wheat products..... do.	60,830	123,887
Sugar..... do.	58,487	.....
Quebracho:		
Loga..... do.	50,884	6,581
Extract..... do.	109,132	103,770
Butter..... cases.	453,085	634,528
Hay and alfalfa..... bales.	293,113	195,447
Hides and skins:		
Calf..... number.	202,950	188,799
Ox—		
Dry..... do.	791,220	897,857
Salted..... do.	1,789,926	1,920,874
Horse..... do.	128,430	59,461
Sheep..... bales.	23,005	25,032
Goat..... do.	1,752	3,550
Wool..... do.	192,548	288,938
Hair..... do.	5,031	3,404
Tallow..... pipes.	1,077	180
Beef:..... casks.	113,999	96,774
..... hogheads.	.....	1,215
Frozen..... quarters.	3,842,779	2,620,640
Chilled..... do.	536,875	1,264,469
Mutton, frozen..... carcasses.	1,050,643	1,906,318
Lamb, frozen..... do.	417,488	787,893

Average weights: 1 bale of wool, 420 kilos; 1 bale of sheepskins, 400 kilos; 1 bale of hair, 400 kilos; 1 bale of goat skins, 370 kilos; 1 bale of hay, 50 kilos; 1 pipe of tallow, 400 kilos; 1 hoghead of tallow, 200 kilos; 1 case of butter, 25 kilos.

See NAVAL PROGRESS.

RAILWAYS. During the year work continued on the Salta-Huatiquina Railway, in Argentina. The Chilean government informed the Argentine government that construction on the Antofagasta-Huatiquina section was being pushed vigorously, and it was expected that work would begin on the line from Embarcacion to Yacuiba on the eastern frontier of Bolivia. There was also rate trouble during the year and increases put into effect on the British-owned railways of Argentina were declared null and void in a decree of President Yrigoyen, on the ground that they were increased without the sanction of the government. The railways, however, contended that they had the right to raise rates and the government assessed heavy fines against the carriers. Under the president's decree these fines were to be remitted if the rates were lowered to the former level.

HISTORY. The Pan-American postal congress at Buenos Aires in November adopted an agree-

ment whereby parcel-post was to pass free through the contracting countries. In the autumn the president signed and put into effect the law against rent profiteering which forebade the increase of rents over the point charged before Jan. 1, 1920. A note for \$50,000,000 with interest at 7 per cent maturing in two years was subscribed by a group of American financiers. Exports to the United States according to official figures during the first months of the year averaged 75 per cent higher than those during the same period in the five years preceeding the war. Riots were reported at the end of May, attributed to Communists, and resulting in over 600 arrests at Buenos Aires. The strikers attacked the customs house warehouses, destroying them and causing a loss of several millions pesos.

OTHER EVENTS. There were disorders during the year in the territory of Santa Cruz but they were suppressed in the latter part of the year by a regiment of cavalry. In the budget for 1922 woolen cloth made in foreign countries out of raw material from Argentina was declared free of duty for three years. Toward the end of the year it was learned that the government had decided to acquire eight submarines of 800 tons each. See CHILE.

ARIZONA, POPULATION. According to the report of the census of 1920, there were 334,162 residents in the State, Jan. 1, 1920, as compared with 204,354 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Corn.....	1921	35,000	1,015,000	\$ 1,015,000
	1920	29,000	638,000	1,085,000
Oats.....	1921	18,000	630,000	410,000
	1920	13,000	351,000	337,000
Wheat.....	1921	40,000	840,000	1,080,000
	1920	36,000	864,000	2,264,000
Barley.....	1921	29,000	928,000	742,000
	1920	20,000	680,000	952,000
Hay.....	1921	155,000	1,465,000	6,015,000
	1920	131,000	1,387,000	11,115,000
Potatoes.....	1921	4,000	460,000	644,000
	1920	4,000	360,000	684,000
Cotton.....	1921	90,000	1,400,000	5,400,000
	1920	230,000	1,103,000	15,468,000

¹ Tons.

² Bales.

IRRIGATION. Statistics of irrigation issued by the Bureau of the Census are shown in the table on page 56.

MINERAL PRODUCTION. The value of the gold, silver, copper, and lead produced by mines in Arizona in 1921, according to the estimate of the United States Geological Survey, was about \$26,000,000, a decrease from \$114,628,584 in 1920. As most of the copper-smelting plants were closed after March or April the output of copper was less than one-third of that in 1920. No zinc was marketed, the output of lead was abnormally reduced, and the output of gold and silver was only half that of 1920. The gold produced by mines in Arizona decreased from \$4,786,122 in 1920 to about \$3,046,000 in 1921, largely because of the closing of the copper mines but partly because of the smaller output of gold ore. The mine output of silver decreased from 5,355,303 ounces in 1920 to about 2,179,000 ounces in 1921. As most of the silver is associated with copper ore the decreased output of silver was due to the

Item	Census of—		Increase, per cent ¹
	1920	1910	
Number of all farms.....	9,975	9,227	.8.1
Approximate land area of state.....	acres 72,838,400	72,838,400	.....
All land in farms.....	acres 5,802,126	1,246,613	365.4
Improved land in farms.....	acres 712,803	350,173	103.6
Number of farms irrigated.....	6,605	4,841	36.4
Area irrigated.....	acres 467,565	320,051	46.1
Area enterprises were capable of irrigating.....	acres 627,303	387,655	61.8
Area included in enterprises.....	acres 813,153	944,090	-13.9
Per cent irrigated:			
Number of all farms.....	66.2	52.5	.....
Approximate land area of state.....	0.6	0.4	.....
Land in farms.....	8.1	25.7	.....
Improved land in farms.....	65.6	91.4	.....
Excess of area enterprises were capable of irrigating over area irrigated.....	acres 159,738	67,604	136.3
Excess of area included in enterprises over area irrigated.....	acres 185,850	624,039	-70.2
Area of irrigated land reported as available for settlement.....	acres 24,341	(²)	.....
Capital invested.....	\$33,498,094	\$17,677,966	89.5
Average per acre enterprises were capable of irrigating.....	53.40	45.60	17.1
Estimated final cost of existing enterprises.....	34,615,064	24,828,868	39.4
Average per acre included in enterprises.....	42.57	26.30	61.9
Average cost of operation and maintenance per acre.....	3.27	0.93	251.6

¹ A minus sign (—) denotes decrease.² Not reported in 1910.

decreased mining of copper. The mine output of copper decreased from 558,256,302 pounds in 1920 to about 163,087,000 pounds in 1921. The value of the output decreased from \$102,719,160 in 1920 to about \$20,565,000 in 1921, owing to the curtailment of production and the decrease in the average price of copper from 18.40 cents to 12.50 cents a pound. The mine production of lead in Arizona decreased from 14,599,765 pounds in 1920 to about 5,182,000 pounds in 1921. The value of the output decreased from \$1,167,981 to about \$238,000. No shipments of lead ore or concentrate were made from the Shattuck mine, which was the largest producer of lead in 1920. Much silver-lead ore, however, was shipped from the Copper Queen mine, especially from September to the close of the year, and the Bunker Hill Co., at Tombstone, shipped much lead ore as well as silver ore to El Paso, Tex. As the demand for zinc was poor and the price decreased to about 5.11 cents a pound, no zinc ore was shipped from mines in Arizona.

MANUFACTURES. The following information in respect to manufactures was supplied by the United States Bureau of the Census in 1921. Arizona has a gross area of 113,956 square miles, of which 113,810 represent land surface. The inhabitants of the State in 1900 numbered 122,931; in 1910, 204,354; and in 1920, 334,162. Both in total population and in density of population Arizona ranked forty-fifth among the States in 1920. The number of inhabitants per square mile in 1910 was 1.8, the corresponding figure for 1920 being 2.9. There were in the State in 1920 only two cities having more than 10,000 inhabitants—Phoenix and Tucson. These cities, with a combined population of 49,345, formed 14.8 per cent of the total for Arizona in 1920 and reported 9.9 per cent of the value of the State's manufactured products in 1919. The large increases in wages, cost of materials, and the value of products, as presented in the following table, were chiefly due to the change in industrial conditions brought about by the World War, and therefore can not properly be used to measure the growth of manufactures during the census period 1914 to 1919. However, the increases in average number of wage earners and horsepower are significant evidences of the growth of the manufacturing

activities of the State. The addition of the Federal income tax since 1914 will account for the large increase in "rent and taxes." The percentage of increase in the cost of materials (135.8), as compared with that for value of products (88.4) resulted in a small increase (13.4) in value added by manufacture. This condition was due to the copper smelting and refining industry, which in 1919 formed more than two-thirds of the total value of products for the State. Between the time of purchase of the materials used and the turning out of the products the market value of copper had greatly decreased, necessarily affecting the normal business conditions pertaining to the disposition of the products.

	1919	1914
Number of establishments.....	480	322
Persons engaged.....	10,347	8,014
Proprietors and firm members..	416	267
Salaried employees.....	1,403	849
Wage earners (average number)	8,528	6,898
Primary horsepower.....	103,958	54,697
Capital.....	\$101,486,070	\$40,300,365
Salaries and wages.....	15,126,607	7,648,749
Salaries.....	3,111,838	1,417,876
Wages.....	12,014,769	6,228,873
Paid for contract work.....	153,153	174,830
Rent and taxes.....	1,786,447	518,426
Cost of materials.....	92,645,437	39,283,038
Value of products.....	120,769,112	64,089,510
Value added by manufacture.....	28,123,675	24,806,472

TRANSPORTATION. The two railways of the State have a mileage of 2429. Two main lines cross the State. The extensions and branch lines are mainly dependent on the mining industry, and there was curtailment of service on some of them on account of the decline in the copper output noted above.

FINANCE. The total net receipts in the year ending June 30, 1921, were \$3,088,310; total net expenditures, \$7,451,996; excess of revenue over expenditure, \$636,313; treasurer's cash balance, June 30, 1921, \$2,610,968. The State indebtedness was \$869,972; county indebtedness, \$1,967,805; city indebtedness, limited to Prescott, Tombstone, and Tucson, \$130,498; total, \$2,966,275.

EDUCATION. School enrollment (graded) 72,586; daily attendance, 44,587; number of teachers, 2042; average salary of teachers, \$193 for men and \$151 for women. High school enrollment, 6716; daily attendance, 5201; number of

teachers 410. Cost of maintenance, \$4,448,-884 (graded) and \$1,174,872 (high schools).

CHARITIES AND CORRECTIONS. The State institutions with approximate number of inmates, in December, 1921: Penitentiary, Florence, 422; Pioneers' Home, Prescott, 69; Industrial School, Fort Grant, 106; Hospital for Insane, Phoenix, 550.

LEGISLATURE. The regular session of the legislature was held in January, 1921. Legislation of importance included the creation of a State Child Welfare Commission, Soldier Land Settlement Commission, Immigration Commission, State Board of Nurse Examiners, State Board of Chiropractic Examiners, State Board of Registration for Engineers, Architects, and Land Surveyors.

OFFICERS. Governor, Thomas E. Campbell; Secretary of State, Ernest Hall; Auditor, Charles W. Fairfield; Treasurer, Raymond Earhart; Attorney-General, W. J. Galbraith.

JUDICIARY. Supreme Court: H. D. Ross; E. J. Flanagan; A. G. McAlister.

ARIZONA, UNIVERSITY OF. A co-educational State institution at Tucson, Ariz.; founded in 1885. The enrollment for the year 1921-22 was 1645. The income was \$300,000 and the library contained 40,000 volumes. A new women's dormitory was completed at a cost of \$200,000 and the new observatory was completed. President, Rufus Bernhard von Klein Smid.

ARKANSAS. POPULATION. According to the report of the census of 1920, there were 1,752,204 residents in the State, Jan. 1, 1920, as compared with 1,574,499 in 1910.

AGRICULTURE. The following table is compiled from estimates of the United States Department of Agriculture, covering the years 1920 and 1921.

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	2,734,000	60,148,000	\$34,284,000
	1920	2,330,000	54,522,000	52,886,000
Oats.....	1921	300,000	8,600,000	2,970,000
	1920	290,000	7,250,000	5,655,000
Wheat.....	1921	103,000	958,000	958,000
	1920	126,000	1,197,000	2,274,000
Hay.....	1921	799,000	859,000	10,265,000
	1920	784,000	1,909,000	14,512,000
Peanuts.....	1921	16,000	11,520,000	576,000
	1920	16,000	12,000,000	960,000
Rice.....	1921	125,000	6,688,000	6,153,000
	1920	175,000	8,575,000	11,233,000
Potatoes.....	1921	33,000	1,815,000	3,267,000
	1920	31,000	2,418,000	4,232,000
Swt. Potatoes..	1921	54,000	5,670,000	5,649,000
	1920	49,000	5,145,000	5,402,000
Cotton.....	1921	2,572,000	860,000	69,230,000
	1920	2,980,000	1,215,000	80,761,000
Sor. Syrup.....	1921	45,000	3,960,000	2,257,000
		42,000	3,780,000	3,969,000

¹ Tons. ² Pounds. ³ Bales. ⁴ Gallons.

IRRIGATION. Statistics of irrigation supplied by the United States Bureau of the Census are given in the table on page 58.

TRANSPORTATION. There were 5175 miles of railroad operating in the State. No new lines, except side trackage, were built in 1921.

FINANCE. Receipts for the State during 1921 were \$6,711,000; expenditures, \$6,702,000; balance, \$5,515,000. The total State debt was \$2,538,000. These figures are approximate.

EDUCATION. Total school population in 1921, 675,000; enrollment, 490,000; attendance, 349,000; number of teachers, 11,750; average salary of teachers, \$83; total expenditures for education during year, \$3,652,000.

CHARITIES AND CORRECTIONS. Charitable and correction institutions of the State are as follows: Hospital for Nervous Diseases, at Little Rock (population 2000); Deaf Mute Institute, located at Little Rock (pupils, 300); Blind School, at Little Rock (pupils, 100); Confederate Home, at Sweet Home (population, 165); Tuberculosis Sanatorium, at Booneville (patients, 176); Farm for Women, at Jacksonville (inmates, 13; opened for inmates, June 20, 1920); Boys' Industrial School, at Pine Bluff (population, 121); Girls' Industrial School, at Alexander (inmates, 20; opened for inmates, March 24, 1919); State Penitentiary, at Little Rock, Ark., and with farms at Tucker and Cummins (prisoners, 728).

LEGISLATURE. Responding in part to the recommendations of Governor McRae for the abolition of certain commissions and offices, the 1921 legislature replaced the paid penitentiary commission with an honorary commission. The corporation commission was abolished and a railroad commission created, but control of local public utilities was restored to municipalities. An act was passed which based the motor vehicle license on weight, horsepower and carrying capacity; thirty per cent of the proceeds to go to the State highway department and each county to receive 70 per cent of the tax paid on motor vehicles owned within its borders. A tax of one cent a gallon was levied on gasoline, the proceeds being divided equally between the State and the counties. Before the legislature met, initiative petitions for the submission of two proposed constitutional amendments, one to provide new initiative and referendum machinery and the other to remove the 12-mill limitation on local school taxes, had been filed with the Secretary of State. As only three amendments can be submitted at one election, the legislature could submit only one. It adopted a resolution for an amendment to permit the taxation of personal property by improvement districts, but the resolution was vetoed by Governor McRae, who desired the submitting through the initiative, of a proposed amendment to end local legislation. The power of the Governor to veto a resolution for a constitutional amendment was in dispute, and the Secretary of State announced that he would put on the ballot the proposed amendment to permit the taxation of personal property by improvement districts.

The 1921 legislature made the fiscal year July 1 to June 30, for appropriations, reports, etc. All appropriations are made for one-year periods, each session of the General Assembly making two such appropriations for each project, and a ruling of the State Comptroller requires these annual appropriations to be budgeted as to months. A re-levy of all taxes was made in order more clearly to define the purposes for which collected. The so-called State tax rate was 8.7 mills on each dollar assessed. As a matter of fact, about 5.5 mills of this merely came through the Treasury for distribution to the counties—3.5 mills for school purposes and 2 mills for pensions. Of the remainder, 1.92 mills was for State educational institutions and 1.2 mills for State charitable institutions, leaving only .08 of a mill—or less than one one hundredth of the total—for purposes other than schools or charity. This small balance was used to create a sinking fund to retire the State's bonded indebtedness.

Item	Census of—		Increase Per cent ¹
	1920	1910	
Number of all farms.....	232,604	214,678	8.4
Approximate land area of the state.....	acres. 33,616,000	33,616,000	.....
All land in farms.....	acres. 17,456,750	17,416,075	0.2
Improved land in farms.....	acres. 9,210,556	8,076,254	14.0
Number of farms irrigated.....	1,166	232	402.6
Area irrigated.....	acres. 143,946	27,753	418.7
Area enterprises were capable of irrigating.....	acres. 179,013	47,136	279.8
Area included in enterprises.....	acres. 246,480	52,883	366.1
Per cent irrigated:			
Number of all farms.....	0.5	0.1	.....
Approximate land area of state.....	0.4	0.1	.....
Land in farms.....	0.8	0.2	.....
Improved land in farms.....	1.6	0.3	.....
Excess of area enterprises were capable of irrigating over area irrigated.....	acres. 35,067	19,383	80.9
Excess of area included in enterprises over area irrigated.....	acres. 102,534	25,130	308.0
Capital invested.....	\$7,183,322	\$587,834	.....
Average per acre enterprises were capable of irrigating.....	40.13	12.47	221.8
Estimated final cost of existing enterprises.....	7,283,522	612,834	.....
Average per acre included in enterprises.....	29.55	11.59	155.0
Average cost of operation and maintenance per acre.....	13.67	.....	.....

¹ Per cent not shown when more than 1,000.

POLITICS AND GOVERNMENT. The executive, judicial, and legislative departments of government, including many boards and commissions, and the correctional institutions are supported by indirect taxes, such as franchise, inheritance, insurance, and cigarette licenses. Many departments, such as the bank department, feed inspection bureau, etc., are self-supporting, their revenues coming from inspection or examination fees. The highway department derives the State money with which it aids road districts from 30 per cent of the automobile license and 50 per cent of the gasoline tax.

A suit was pending in the State supreme court, filed by 112 stock fire insurance companies, attacking the order of the State Insurance Commissioner for a lowering of fire insurance rates. The law fixes a net underwriting profit of 5 per cent as the maximum, and the contention was over what are proper debits and credits in determining this net underwriting profit.

The State supreme court decided that a plea of former acquittal or conviction in the Federal court for a violation of the liquor laws cannot be pleaded as a defense to a charge in the State courts based on the same act; that the same act may be a violation both of the State and the Federal law and punishable under both jurisdictions. The court also decided that, in the absence of any statute, there is no authority for confiscating a vehicle unlawfully carrying intoxicating liquor.

A suit was instituted in the United States Supreme Court to settle a boundary dispute between this State and the State of Mississippi along the side of Lee County, Ark. Attorney-General Utley authorized an intervention on behalf of the State of Arkansas in the boundary suit in the United States Supreme Court pending between Texas and Oklahoma.

OFFICERS. Governor, Thomas C. McRae; Secretary of State, Ira C. Hopper; Attorney-General, J. S. Utley; Treasurer, Joe Ferguson; Auditor, James Guy Tucker; Adjutant-General, Joe S. Harris; Superintendent of Public Instruction, J. L. Bond.

JUDICIARY. Supreme Court: Chief Justice, E. A. McCulloch; assistant justices, Caroll D. Wood; J. C. Hart; Frank G. Smith, T. H. Humphreys.

ARKANSAS, UNIVERSITY OF. A co-educational State institution at Fayetteville, Ark.; founded in 1871. It comprises colleges of arts and sciences, education, engineering, agriculture (including an experiment station), and medicine, the last named being at Little Rock. The enrollment for 1921-22 was 1086; for the summer school of 1921, 656. The faculty numbered 93, an increase of 10 in the course of the year. The number of volumes in the library was 40,000. The following changes of interest in the course of the year may be noted: a department of Agricultural Education has been added to the curriculum. A unit of the Federal Board for vocational instruction to Federal students is maintained. At the request of the University, the United States Bureau of Education made a survey of the University in June, 1921. The tax levy for the support of the institution was raised from four-ninths of a mill to one mill. President, John Clinton Futrall.

ARMAMENTS, CONFERENCE ON LIMITATION OF. See WAR OF THE NATIONS, AND NAVAL PROGRESS.

ARMENIA. A term applied before the war, sometimes to the territory occupied by the Armenians within the former Turkish empire, and sometimes to the whole region in which Armenians were the dominant race element, but since 1918 applied specifically to the new state, known as the Armenian Republic of Erivan. As applied to the regions inhabited by the Armenians it included an extensive region partly in the former Turkish empire and partly in Russia. In the Turkish empire the Armenians made up about 38.9 per cent of the following vilayets: Erzerum, Tiflis, Kharput, Diarbekr, Sivas, and Van, being in the minority in the first five and in the majority in the last named. Owing to the massacres, deportations, and migrations of the last few years, the present number is unknown. See preceding YEAR BOOK.

ARMENIAN REPUBLIC OF ERIVAN. In February, 1918, the Armenians of Russia along with the other two main peoples of Trans-Caucasia, the Georgians and the Tartars, sent representatives to an assembly known as the Diet of Trans-Caucasia which declared the independence of the Republic of Trans-Caucasia. The three parts of this federation, namely, Armenia, Georgia, and Azerbaijan, soon separated, and Armenia and

Georgia each declared its independence in May, 1918. The Armenian Republic of Erivan was then constituted in the territory comprising the south-eastern part of Trans-Caucasia division of Russia. It was thus a fragment of the former Russian government. In January, 1920, its *de facto* independence was recognized by the Allies, and in August, 1920, its *de jure* independence was recognized in the treaty of Sèvres with Turkey, which treaty was signed by the Armenian Republic along with the other Powers. Its area as indicated by the treaty and by the proposals of President Wilson, who had been requested to arbitrate the question of boundaries, was placed at about 80,000 square miles, but, if other regions were added in accordance with the recommendation of President Wilson, the total area, according to the figures then published, would come to 170,000 square miles. The population in 1917 had been placed at 2,159,000 of whom 1,416,000 were Christians and most of the rest were Mohammedans, but, after the war there was a great shifting of the population owing to the removal of about 300,000 Mohammedans, and the return of a large but indeterminate number of Armenians. The chief cities with their estimated population are: Erivan with about 90,000; Alexandropol with 50,000; and Kars with about 35,000.

FAMINE CONDITIONS. According to the report of a committee of the Near East Relief that made a survey of the conditions in Armenia in 1921 the situation was more serious than it had been at any time since the Armistice. They reported that 400,000 people were without means of support and 100,000 orphaned children in a state of destitution. The conditions as described by the commission were like those of the famine district of Russia. Government aid in 1921 was no longer available, and the starving people were depending solely on private assistance under the Near East Relief. According to the commission that visited the famine area the distress was due to the fact that the Turks when they invaded the country destroyed about 140 villages, driving the inhabitants out into the country. This occurred in April when it was too late to plant crops. The number of Armenian refugees from Turkish Armenia was placed by the commission at 585,000. In the Armenian republic there were 280,000 of these fugitives and the Turkish invasion added about 120,000, making a total of about 400,000. On the commission's visit in August to the cities and towns it was estimated that about 50,000 Armenians were concentrated in them, of whom the greater part were in a starving condition and also suffering from ravages of the cholera. Over 60,000 children were turned over by the government to the Near East Relief to be fed, clothed, and sheltered. In the orphanages of the city of Alexandropol alone there were 18,000 children. In the summer, outside the orphanages some 50,000 children were being fed one meal a day and provided with clothing sent from the United States.

SITUATION AT THE CLOSE OF THE YEAR. Soviet control over the country was still unshaken at the close of the year in spite of the efforts of certain groups to free the country from both Russian and Turkish influence. A representative of this element sent a letter to the League of Nations, saying that the Armenians would persist in their hostility to the Turks until their account was

settled. Massacres of Armenians were reported in Cilicia in the latter part of the year and it was feared that conditions would grow worse there after the withdrawal of the French in accordance with the Franco-Turkish treaty. Estimates published at the close of the year placed the number of Armenians killed in Cilicia since 1920 at 25,000. A portion of the territory claimed by Armenia was taken away by the treaty between the Angora government on the one hand and the Soviet republics of Armenia, Azerbaijan, Georgia, and Daghestan on the other, signed at Kars, October 13, and was to be established as a self-governing state under the title of Nakhitchevan under the protection of Azerbaijan. The treaty superseded all other Caucasian treaties, except the Russian-Turkish convention concluded at Moscow in 1920, and it conceded to the Turks about half of Caucasian Armenia and extensive regions of Georgia.

ARMSY, HENRY PRENTISS. Specialist in animal nutrition, died at State College, Pa., October 19. For the fourteen years preceding his death he was Director of the Institute of Animal Nutrition at the Pennsylvania State College. He was born in 1853 (?) and was a member of the faculty of the Pennsylvania State College for thirty-four years, becoming one of the best known specialists in animal nutrition in the country.

ARNOLD, JACOB H. SEE NECROLOGY.

ARTILLERY. See MILITARY PROGRESS; NAVAL PROGRESS, etc.

ASIA. See CHINA; JAPAN; and the articles on the other subdivisions of the continent. See also the article, EXPLORATIONS.

ASIA MINOR. See ANATOLIA and TURKEY.

ASPHALT. The quantity of native asphalt and native bitumens sold in the United States in 1920 was 198,497 short tons valued at \$1,213,908 according to the United States Geological Survey, Department of the Interior. This was an increase of 125 per cent in quantity and of about 78 per cent in value over 1919. Gilonite was reported from Uinta County, Utah, wurtsilite (or elaterite) from Duchesne County, Utah, and grahamite from Pushmataha County, Okla. The sales of manufactured asphalt obtained from domestic petroleum amounted to 700,496 short tons, valued at \$11,985,457, or \$17.11 a ton. Compared with 1919 these figures indicate an increase of 14 per cent in quantity and 37 per cent in value. The sales of asphalt manufactured in the United States from Mexican petroleum in 1920 amounted to 1,045,779 short tons, valued at \$14,272,862, or \$13.65 a ton. This was an increase of 55 per cent in quantity and of 85 per cent in value over 1919.

ASTRONOMY. The outstanding work of the year emanated from the Mt. Wilson Observatory. A notable event was the publication, by Dr. Adams and his associates, of the absolute magnitudes and spectroscopic parallaxes of 1646 stars. In complete confirmation of the earlier work of Adams and Joy, these data establish beyond doubt the validity of Russell's views on giant and dwarf stars. In their early or giant stage the stars are immensely inflated gaseous masses, so tenuous that their density may be as low as one-thousandth that of atmospheric air. As they grow older and condense, their temperature rises and their reddish color changes to yellow and then to white. A critical point is reached

when the increasing pressure carries the mass beyond the state of a perfect gas and into the period of declining stellar life. Beyond this stage lie the denser and smaller stars known as "dwarfs," of which our sun, 1.4 times as dense as water, is one. As the shrinkage goes on, the colors that mark the giant state return, first yellow and then through deepening shades of red as the star approaches final extinction.

Upon combining the knowledge of the distances of the stars with their known proper motions and radial velocities, it is found that the space velocities of yellow and red stars, especially the giants, depend upon their absolute luminosities, the fainter stars moving more rapidly than the brighter ones; this probably means that stars of small mass move more rapidly, on the average, than those of large mass. Of the many other important conclusions of this investigation, one of the most significant is that the stars with large velocities, most of which are dwarfs, are moving towards the centre of the galactic system.

Work has been continued with Michelson's interferometer, which was described in last year's report. The fringes of Arcturus and of Antares disappear at mirror separations corresponding to angular diameters of $0''.022$ and $0''.040$, respectively, and linear diameters of about 21,000,000 and 400,000,000 miles (there is some uncertainty as to the parallaxes). Thus Antares, although apparently fainter than Betelgeuse, is in reality three times as bright, being twice as far away; its surface brightness appears to be rather less than that of Betelgeuse. The spectrum of the faint companion of Antares has been obtained, and found to indicate a temperature higher than that of our sun; yet the pair seem to constitute a true binary system. In the case of several other stars, even when the angular diameter is much smaller, distinct decrease in visibility has been observed when the mirrors were separated. Prof. Michelson has made very precise estimates of decreasing visibility for white stars, and has devised a simple auxiliary apparatus for producing comparison fringes of known visibility. Thus, if uncertainties due to variations in seeing can be allowed for, it may even become possible with the 20-foot interferometer to obtain approximate measures of stars of very small diameter. The measures of Arcturus and of Antares have again provided substantial confirmation of the theories of Russell and Eddington regarding stellar evolution.

One of the most significant features of recent astronomical progress is the increasing liaison between astronomy and the fundamental sciences of physics and chemistry. Scores of illustrations might be advanced to indicate how often the clue to fundamental physical and chemical problems may be found in the stars, and how frequently advances in pure physics aid in the solution of astronomical problems. The utilization of laboratory experiments as the necessary means of interpreting astronomical phenomena has been strongly emphasized at Mt. Wilson ever since the inception of the Observatory; a physical laboratory formed part of the original equipment there, and soon advanced from a secondary to a primary place in the scheme of work. Although planned with special reference to the practical problem of interpreting astronomical phenomena, it was never limited narrowly

to the viewpoint of the astronomer, but attacked problems with the general interests of physical and chemical research in mind. However, an unlimited pursuit of purely fundamental physical aspects would result in too great a scattering of effort and departure from the primary objectives of the institution; hence a particularly important event of the year was the establishment in Pasadena of the Norman Bridge Physical Laboratory of the California Institute of Technology, with Dr. Millikan as director, which will maintain close relations with the Mt. Wilson Observatory and with the Gates Chemical Laboratory. The problem of the constitution of matter may in many cases be approached even more effectively by the astrophysicist than by the physicist or the chemist, and is becoming of increasing importance to the two problems of the evolution of stars and the structure of the universe which have hitherto been particularly attacked at Mt. Wilson. The equipment of the Mt. Wilson Observatory, with the close coöperation of great physical and chemical laboratories, will be peculiarly adapted to the purpose of raising the problem of the constitution of matter, so richly and abundantly illustrated under the extreme ranges of pressure, of temperature, and of electrical excitation exhibited by the sun and the stars, from a minor to a major position in the astronomer's scheme of research.

Besides numerous investigations in precision spectroscopy, photometry, etc., the work of the year at Mt. Wilson included an investigation of the combined effect of electric and magnetic fields on radiation, resulting in an almost conclusive proof of the absence of an electric field in sunspots; a demonstration of the constancy of position of the telluric oxygen and water vapor lines of the solar spectrum, which are therefore of great value as standards; the proof of the absence of both oxygen and water vapor in the atmosphere of Venus above the cloud layer; the verification of the large internal motions discovered in the Crab nebula by Lampland; and the obtaining of definite evidence, by van Maanen, of outward motion along the arms of the spirals M51 and M81, in agreement with the theories of Jeans.

Dr. Megh Nad Saha, of the University of Calcutta, has, through a study of the ionisation of the elements according to the principles of physical chemistry, offered explanations of many of the most puzzling phenomena of solar and stellar spectra. It has hitherto been impossible to understand why the H and K lines of calcium, an element of comparatively high atomic weight, extend to the highest levels in the solar atmosphere, far outreaching the lines of sodium, magnesium, and other lighter elements. According to Dr. Saha, the H and K lines are the enhanced lines of a calcium atom which has lost one electron, whereas the fundamental line of neutral calcium is $\lambda 4227$. In the higher levels of the chromosphere, where the ionisation, which is only partial at the higher pressures of the lower levels, becomes complete, neutral calcium disappears, while the lines representing the ionized atoms remain conspicuous. The lines corresponding to the ionized atoms of the other elements fail to appear because they lie in the extreme ultra-violet. Russell has extended the theory to the case where atoms of several kinds are present, and has tested it in a preliminary study of the spectra of sunspots;

among the interesting results of this work is the discovery in the sun of rubidium, two lines appearing in the infra red spot spectrum as predicted by Saha.

STRUCTURE OF THE UNIVERSE. Work on this problem has been continued by Kapteyn, Jeans, and Shapley. Kapteyn, from his results on the distribution of stars, has derived the value of the attraction of all the stars on any particle within the system, and calculated the systematic motions which the stars must have in order to produce equilibrium; the results are in fair agreement with facts so far as known. The work of Jeans indicates that the universe probably has not yet attained dynamical equilibrium, and may be collapsing somewhat rapidly towards a steadier condition. The distance of the cluster N. G. C. 7006, previously found by Shapley to be 220,000 light years, has been confirmed by a study of its variable stars; investigations of the distances of the galactic clouds by Seares also indicate a scale for our stellar system in harmony with that derived by Shapley. Shapley's studies of star clusters have led him to the conclusion that the universe is approximately 300,000 light years in diameter, and 30,000 or more in thickness, with our sun at least 50,000 light years from the centre of, but in the plane of, the galaxy; the globular clusters are remote objects, but a part of our own galaxy; the spirals are probably of nebulous constitution, and possibly not members of our own galaxy, driven away in some manner from the regions of greatest star density. The older views, of which Dr. Curtis is a champion, hold that our galaxy is probably not more than 30,000 light years in diameter, and perhaps 5000 in thickness; the clusters and all other types of celestial objects except the spirals are component parts of our own galactic system; the spirals are a class apart—*island universes*, perhaps, of the same order of size as our galaxy, and distant from us 500,000 to 10,000,000 light years or more.

EINSTEIN THEORY OF RELATIVITY. All discussion has tended to confirm the eclipse results of 1919 relative to the gravitational deflection; the effects of numerous other causes tending to displace the star images all seem to be entirely inadequate; additional confirmation is afforded by Campbell's examination of plates taken at several eclipses since 1900. Likewise, attempts to explain the motion of Mercury on other grounds continue to fail. The greatest interest still centres around the spectral shift: several European investigators, after making arbitrary assumptions and applying various corrections for different effects, have claimed to have found this shift and to have explained why others have failed to find it; but final conclusions do not yet seem to be warranted. At Mt. Wilson a most extensive investigation of pressure shifts, temperature effects, pole effects, etc., and interferometer observations of solar lines extending over a range of 2500 Angstrom units, has been undertaken by St. John, Babcock, and others. The Michelson-Morely experiment is also being repeated there, and a new test devised by Silberstein is being carried out. Dr. Einstein, during his visits in the interests of the Zionist movement, delivered lectures at several institutions in the United States and England.

TIDES. Important work on the tidal theory has recently emanated from the Tidal Institute

of the University of Liverpool. Furthermore, the problem of tidal friction seems at last to have been cleared up. An exhaustive investigation of available ancient lunar and eclipse observations, carried out by Fotheringham, has shown that the outstanding solar and lunar accelerations can be accounted for by a slowing down of the rate of rotation of the earth by $1/800$ of a second per century. This requires abstraction of energy from the rotation at a rate corresponding to the action of about two and one-half billion horsepower acting continuously. Jeffreys and Taylor, collecting all available information about tides and currents in shallow seas over the world, have shown that tidal friction in such seas amounts to a total of about three billion horsepower. The most remarkable region is Bering sea, where strong tidal currents sweep in and out over large areas of shallow water and cause more friction here than in all the seven seas besides.

ASTRONOMICAL PHENOMENA. But one solar outbreak of importance occurred: A great spot in May was notable for its size, its position exactly on the equator, its eruptive activity, its mixed polarity, and its connection with brilliant auroras and violent magnetic storms on the earth. Observations of the Zeeman effect showed the spot to consist of two large areas of opposite polarity in each of its chief members; as any direct magnetic effect at a distance would thus be largely annulled, the evidence for the view that terrestrial phenomena connected with spots are due to the eruptions which take place in the area surrounding the spot was greatly strengthened by this interesting case.

In January there was discovered a minor planet, HZ, with a cometary orbit—perihelion near Mars and aphelion near Saturn; 933 minor planets had permanent numbers at the beginning of the year.

There were four comets: Reid, 1921a; Dubiago, 1921c; a return of Encke, 1921d, and of Pons-Winnecke, 1921b. The last-named returned much behind schedule, and departed widely from the calculated orbit; before its rediscovery by Barnard, on April 10, there appeared to be a chance of a close approach to the earth, and there was the usual newspaper talk about a collision; however, even the expected meteor shower failed to materialize to any extent.

Two spiral nebulae with unprecedented radial velocities were found by Slipher—N. G. C. 584, 1800 km./sec.; and N. G. C. 936, 1300 km./sec.

There was an eclipse of Rhea by the shadow of Titan, April 8.

On August 7 an unidentified and very brilliant star-like object was seen a few degrees from the setting sun by several observers in Europe and America, and was never found again afterwards. It was probably a comet which had approached the sun from behind, in a retrograde orbit lying near the plane of the ecliptic, but the object still remains somewhat of a mystery.

MISCELLANEOUS. After a lapse of eight years, the *Astronomische Gesellschaft* met at Potsdam, August 24-27, with representatives of sixteen nations in attendance. The *Astronomische Nachrichten* celebrated its centenary.

Dr. Harlow Shapley was appointed director of the Harvard College Observatory; plans are being made to put into operation there a 60-inch reflector, the mirror for which has been in storage

since 1902 when it was received from England and found unsuitable for the work then being done. A Municipal Observatory was opened in Des Moines. The Observatory of Copenhagen continues to act as the distributing point for astronomical telegrams for the Central Powers and certain other observatories, but an agreement has been reached between Copenhagen and Uccle whereby each distributes to its subscribers the telegrams received by the other.

NÉCROLOGY. Sherburne W. Burnham, the noted double-star observer, March 11; Mary W. Whitney, emeritus professor of astronomy at Vassar College, January 20; Wilhelm Foerster, former director of the Berlin Observatory, January 18; W. R. Brooks, director of Smith Observatory of Hobart College, and the discoverer of 27 comets, May 3; Luis Garcia Y. Carbonell, Director Observatorio Nacional de Cuba; Henry Bourget, Director of the Marseilles Observatory; C. Grover, variable star observer, of Rousdon, Devonshire. See METEOROLOGY, paragraph AUTHOR.

ATHLETICS, TRACK AND FIELD. This branch of sports missed the international flavor afforded in 1920 by the Olympic Games, but the visit of the Oxford-Cambridge athletic team to the United States in July attracted considerable interest and resulted in keen competition on the track and field. The first meet engaged in by the Britons was against a combined Yale-Harvard team, the Americans winning eight first places out of ten. The second meet was between the Britons and a Cornell-Princeton team, the outcome being a tie. The first of these international contests was notable for the new world record established in the running broad jump by Edward Gourdin of Harvard. His leap was 25 feet, 3 inches, which excelled the former record made by Pat O'Connor of Ireland in 1901 by 3 1-4 inches. A squad of French runners took part in the relay carnival held at Philadelphia under the auspices of the University of Pennsylvania, but the visitors were completely outclassed.

The individual star of the year was Charles W. Paddock of the University of Southern California who set eleven new marks for the sprints, six of which were for standard distances. Paddock's most remarkable feat was running the 100 yards in 9 3-5 seconds on four different occasions and on four different tracks. This world record time he shares with Dan J. Kelly and Howard Drew.

Other U. S. athletes to break records during 1921 were Larry Brown of the University of Pennsylvania, August Desch of Notre Dame University and Willie Plant of the Morningside A. C. of New York City. Brown ran 1000 yards in 2 minutes, 12 1-5 seconds, clipping one-fifth of a second off the time made by "Mel" Sheppard in 1910. Desch went over the 440-yard low hurdles in 53 4-5 seconds, while Plant added to his laurels by setting new figures for the fifteen-mile and two-hour walks. In relay running three new records were established, quarter-mile, half-mile, and mile. The time for the one-mile relay was 3 minutes, 16 2-5 seconds made by Larry Brown, Earl Eby, Dewey Rogers, and Bob Maxam all of the University of Pennsylvania but competing as an American Legion team. The New York A. C. was responsible for the other two relay records which were estab-

lished within a half hour of each other by a team comprising Bernie Wefers, Jr., Harold Ray, Edward Farrell, and F. K. Lovejoy.

The senior outdoor championships of the Amateur Athletic Union were held at Pasadena, Calif., in July, the team winner being the Los Angeles A. C. with a total of 34 points. The New York A. C. was second with 30 points and the Olympic Club third with 23 points. Other teams scoring points were: Chicago A. A., 17; Illinois A. C., 17; Boston A. A., 16; Multnomah A. C., 13; Notre Dame University, 10; Loughlin Lyceum, 8; Edgar Thomson S. W. A. A., 5; Harvard University, 5; Morningside A. C., 5; Ninety-second St. Y. M. H. A., 5; unattached, 5; Phoenix Indian School, 3; University of Pennsylvania, 3; Meadowbrook Club, 2; Millrose, A. A., 2; University of Missouri, 2; Baylor University, 1; Yale University, 1.

The individual winners in the senior outdoor meet were: 100-yard dash, Charles W. Paddock, Los Angeles A. C., 9 3-5 seconds; 220-yard dash, same athlete, 21 4-5 seconds; 440-yard run, W. E. Stevenson, New York A. C., 48 3-5 seconds; 880-yard run, A. Helffrich, New York A. C., 1 minute, 54 4-5 seconds; 1-mile run, J. W. Ray, Illinois A. C., 4 minutes, 16 4-5 seconds; 5-mile run, R. E. Johnson, Edgar Thomson, S. W. A. A., 25 minutes, 53 2-5 seconds; 3-mile walk, Willie Plant, Morningside A. C., 22 minutes, 42 seconds; 120-yard high hurdles, Earl J. Thomson, Boston A. A., 15 seconds; 220-yard low hurdles, same athlete, 24 3-5 seconds; 440-yard low hurdles, August Desch, Notre Dame University, 53 2-5 seconds; running broad jump, Edward Gourdin, Harvard University, 23 feet, 7 3-4 inches; running high jump, D. Y. Alberts, Chicago A. A., who won jump-off from J. Murphy, Notre Dame University, both clearing 6 feet, 4 inches; running hop, step, and jump, Kaufman Geist, Ninety-second St. Y. M. H. A., 46 feet, 3 inches; pole vault, Edward Knourek, Illinois A. C., 12 feet, 7 1-2 inches; putting 16-pound shot, Clarence Houser, Los Angeles A. C., 46 feet, 11 3-4 inches; throwing 16-pound hammer, Patrick Ryan, Loughlin Lyceum, 170 feet, 7 1-2 inches; throwing 56-pound weight, Patrick McDonald, New York A. C., 37 feet, 8 inches; throwing the discus, Gus Pope, Multnomah A. C., 144 feet; throwing the javelin, Milton Angier, unattached, Chicago, 189 feet, 3 1-4 inches.

The junior outdoor meet of the Amateur Athletic Union also was held at Pasadena, the Olympic Club carrying off the team honors by reason of its first places although tied with the Los Angeles A. C. at 75 points. The Chicago A. A. finished third with 16 points and the Boston A. A. fourth with 10.

The New York A. C. won the senior indoor championship meet of the Amateur Athletic Union held at the Twenty-second Regiment Armory, New York City, in March with 22 points. Unattached athletes finished second with 9 points and Brown University third with 8 point. The junior indoor championships were won by Syracuse University which scored 31 points. The Niagara A. A. was second with 13 and the Mohawk A. C. third with 10.

The University of California was the victor in the forty-fifth annual outdoor meet of the Intercollegiate Association of Amateur Athletes of America, gathering 27 1-2 points as against

Harvard University with 27. Other colleges to score points were: Dartmouth, 20; Pennsylvania, 18 1-2; Leland Stanford, 15; Princeton, 13; Cornell, 13; Massachusetts Institute of Technology, 10; Penn. State, 10; Yale, 9 1-2; Lafayette, 9; Syracuse, 8; Georgetown, 5; Rutgers, 4; Holy Cross, 3; Columbia, 1 1-2; Bowdoin, 1.

The individual winners were: 100-yard dash, M. M. Kirksey, Leland Stanford, 10 seconds; 220-yard dash, Allen Woodring, Syracuse, 21 2-5 seconds; 440-yard run, Bob Maxam, University of Pennsylvania, 49 seconds; half-mile run, Earl Eby, Pennsylvania, 1 minute, 55 1-5 seconds; mile run, J. J. Connolly, Georgetown, 4 minutes, 17 1-5 seconds; 2-mile run, R. C. Brown, Cornell, 9 minutes, 32 seconds; 120-yard hurdles, Earl J. Thomson, Dartmouth, 14 4-5 seconds; 220-yard hurdles, same athlete, 24 2-5 seconds; shot-put, J. A. Shelburne, Dartmouth, 45 feet, 3 1-2 inches; high jump R. W. Landon, Yale, and H. P. Muller, California, tied at 6 feet, 3 1-2 inches; hammer throw, G. Dandrow, Massachusetts Institute of Technology, 157 feet, 4 1-2 inches; pole vault, A. G. Norris, California, G. D. Brown, Yale, and R. W. Harwood, Harvard, tied at 12 feet; broad jump, Edward Gourdin, Harvard, 23 feet, 10 3-4 inches.

The twenty-first annual outdoor championships of the Western Conference Athletic Association were won by the University of Illinois with a total of 61 points. Michigan finished second with 35 1-5 and Wisconsin third with 29. Massachusetts Institute of Technology captured the New England Intercollegiate, scoring 46 points. Williams was second with 21 and Holy Cross third with 11. The Oxford-Cambridge dual meet resulted in a tie, each team winning five first places.

AUGUSTA, VICTORIA. Former Empress of Germany, died at Doorn, April 11. She had lived at Doorn with the ex-Kaiser for about a year and had been ill for a long time past. She was born at Dolzig Castle near Frankfort-on-the-Oder, the eldest daughter of the Prince of Schleswig-Holstein-Sonderburg-Augustenburg, and her full name was Augusta Victoria Fredrica Louise Feodora Jennie, Princess of Schleswig-Holstein. She was betrothed to William after her father's death in January, 1881, and the marriage took place, Feb. 27, 1881. She was reputed to have little knowledge of foreign affairs and she had not been a popular figure with the public at large. The Kaiser's public references to her exhibit her in the light of a model of domesticity, associated with the activities summed up in the celebrated phrase *Kinder, Kirche, und Küche*.

AUSTRALIA, COMMONWEALTH OF. A self-governing dominion of the British Empire, consisting of the island continent of Australia with its dependencies. It comprises the six original states of New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania. The government of the present Commonwealth dates from Jan. 1, 1901, when the Act of Union was passed. In addition to the above states it also includes the two territories known as the North Territory and the Federal Territory which were both transferred to the Commonwealth, Jan. 1, 1911. The seat of the government is provisionally at Melbourne, pending the completion of the work on the new site of the capital at Yass-Canberra in the Federal Territory.

AREA AND POPULATION. The following table from the *Statesman's Year Book* for 1921 gives the estimated area in square miles, and the population according to the census of April 3, 1911, together with the estimates of Dec. 31, 1919.

AREA AND POPULATION

States and territories	Area sq. miles	Population census, April 3, 1911	Population estimated Dec. 31, 1919
New South Wales.....	309,432	1,646,734	2,002,631
Victoria.....	87,884	1,315,551	1,495,938
Queensland.....	670,500	605,813	725,220
South Australia.....	380,070	408,558	468,194
West Australia.....	975,920	282,114	331,660
Tasmania.....	26,215	191,211	216,751
Northern Territory.....	523,620	3310	4706
Federal Territory.....	940	1714	1919
Commonwealth.....	2,974,581	4,455,005	5,247,019

Excluding aborigines. These are estimated to number from 75,000 to 100,000.

The above table does not include the aborigines whose number has been placed between 75,000 and 100,000. The estimated populations of the capital cities with their suburbs, Jan. 1, 1920, were as follows: Sydney, New South Wales, 828,700; Melbourne, Victoria, 743,000; Brisbane, Queensland, 289,576; Adelaide, South Australia, 256,660; Perth, Western Australia, 142,000; Hobart, Tasmania (June 30, 1920), 50,000. The movement of population in 1919 was as follows: Births, 122,290; deaths, 65,930; surplus of births, 56,360; marriages, 40,540. The latest figures of immigration and emigration were for 1919, when the arrivals were 222,956; the departures, 62,776; the excess of arrivals 160,180.

EDUCATION. In 1919 New South Wales had 3336 government schools with 9002 teachers and 288,965 pupils enrolled; 681 private schools with 3830 teachers and 81,061 pupils. Victoria had in 1918, 2272 state schools with 6570 teachers and 240,664 pupils; 493 registered schools with 1903 teachers and 560,996 scholars. Queensland had in 1919, 1574 public elementary schools with 4194 teachers and an average daily attendance of 92,569 pupils; 156 private schools with 896 teachers and an average daily attendance of 18,305 pupils. South Australia had in 1919, 945 government schools with 75,681 pupils; 166 private schools with 13,209 pupils. Western Australia had in 1919, 680 government schools with 47,314 pupils; 124 private schools with 11,939 pupils. Tasmania had in 1917, 486 public elementary schools with 36,350 pupils. There are in addition various high and technical schools in all the states. Each of the capital cities of the states is the seat of a university: Sydney (1919), 2797 students; Melbourne (1919), 1987 students; Brisbane (1919), 263 students; Adelaide (1913), 720 students; Perth (1913), 182 students; Hobart (1920), 221 students.

MINERAL PRODUCTION. Australia has been one of the chief gold-producing states of the world. Down to the close of 1918 the gold production amounted in value to £594,536,723, the leading states in respect to output being New South Wales, Victoria, and Western Australia. In 1920 gold was the only mining industry which had approximated a return to normal conditions. Other important minerals are silver, lead, copper, and tin. Many men were thrown out of employment in all

these industries after the war, but the coal mining was less affected than the others. Strikes and other labor difficulties added to the depression, but the main cost was the collapse of the world market for metals. As Australia with its small population can absorb only a small part of the minerals and other raw materials, the industries are dependent on the export trade. In 1920 the exports steadily declined and this decline continued during the early months of 1921. In silver, lead, and zinc mining, the unemployment was especially severe in 1920. Coal is found in every part of the Commonwealth, but the coal production of New South Wales averages more than five times as much as all the other states combined. In 1920 it amounted to 10,715,999 tons, while the average total of the other states during recent years was about 1,840,000 tons.

COMMERCE. Trade with the chief countries in 1918-19 was as follows:

From or to	Imports 1918-19	Exports 1918-19
	£	£
United Kingdom.....	37,971,346	61,603,958
Canada.....	2,282,978	891,529
New Zealand.....	2,420,724	4,156,860
India.....	7,558,858	7,741,081
Ceylon.....	1,628,939	648,426
South African Union.....	5,779,795	2,347,367
Java.....	1,819,186	2,277,887
Belgium.....	725	104,890
France.....	144,544	1,045,182
Germany.....	2356	1608
U. S. America.....	27,930,085	9,009,425
Japan.....	8,281,439	3,846,951
Russia.....	31	2069
Italy.....	165,970	1,724,801

The shares of the respective states in 1919-20 were as follows:

	Imports	Exports
	£	£
N. S. Wales.....	43,148,697	54,696,571
Victoria.....	33,782,164	42,953,749
Queensland.....	7,219,589	14,403,972
S. Australia.....	7,501,158	20,530,337
W. Australia.....	4,959,825	13,698,623
Tasmania.....	813,342	2,000,403
Northern Territory.....	32,124	278,868
Total.....	97,456,899	148,564,523

FINANCE. The Commonwealth budget for the financial year ending June 30, 1922, showed a estimated deficit of £2,817,108, reducing the credit balance brought forward from £6,618,327 at June 30, 1921, to £3,801,219 at June 30 next.

A comparison of the estimated Commonwealth revenue and expenditure for 1921-22 (excluding payments to the state governments), with actual figures for the two previous years, is as follows:

Revenue and expenditure	1918-20	1920-21	1921-22
	£	£	£
Taxation.....	41,101,730	52,229,493	47,281,000
Other revenue.....	11,811,372	13,288,115	14,506,350
Gross revenue.....	52,783,102	65,517,608	61,787,350
Deduct payments to states.....	6,720,492	6,840,163	7,022,500
Net revenue.....	46,062,610	58,677,445	54,764,850
Expenditure.....	43,860,862	57,783,924	57,581,958
Surplus.....	2,201,748	893,521	
Deficit.....			2,817,108

The reduced estimate of taxation was due to the decline in customs revenue, which was estimated at only £16,105,000, against the exceptionally high amount of £21,731,210 received in 1920-21 as the result of excessive importations. The expenditure of £57,581,958 included £18,910,560 for interest on war and other Commonwealth debt (excluding interest on loans issued in London on behalf of the States), against £17,246,381 in 1920-21 and £15,366,700 in 1919-20. In addition to expenditure out of revenue, expenditure out of loans was placed at £11,196,000 for war and repatriation purposes and £5,597,174 for public works. The Commonwealth public debt on June 30, 1921, inclusive of £16,750,000 borrowed in London on behalf of the states, amounted to £401,720,024, afterwards increased by the £10,000,000 loan in September.

PENSIONS. Under the Invalid and Old Age Pension acts of 1916 the rates were not to exceed £32, 10s. a year and the pensioner's entire income was not to exceed £58, 10s. The requirements for pensions were attainment of 65 years of age and residence in Australian territory for at least 20 years; for invalid pensions, residence of at least 5 years in Australia. Under the Maternity act of Oct. 9, 1912, a bonus was paid up to £5 for every child of white parents born in Australia. Disbursements for old age and invalid pensions in 1919-20 were £4,546,879. The maternity allowance for 1919-20 was £625,865. Old age pensioners in the Commonwealth, March 31, 1920, numbered 98,364, and invalid, 34,333; war pensioners, June 20, 1919, 181,529.

COMMUNICATIONS. The following table taken from the *Statesman's Year Book* for 1921 gives the statistics for government railways, state or Federal, for the year ending June 30, 1919.

State or Federal	Miles open	Cost of construction and equipment	Passengers carried	Goods and live stock carried	Gross receipts	Working expenses
		£	Number	Tons	£	£
N. S. Wales.....	4825	76,601,591	98,568,768	12,714,012	9,958,173	6,904,450
Victoria.....	4190	57,403,576	111,904,786	6,515,470	6,432,277	4,279,663
Queensland.....	5469	38,244,494	26,414,817	3,783,334	3,984,597	3,690,445
S. Australia.....	2290	18,649,979	20,176,544	2,618,510	2,391,409	1,829,634
W. Australia.....	3538	17,995,941	17,325,424	2,379,403	1,872,897	1,567,591
Tasmania.....	601	5,076,014	1,889,102	472,926	401,364	324,595
Federal						
Trans. Australia.....	1051	6,911,624	23,942	116,971	175,134	243,988
Oodnadatta.....	478	2,282,973	51,516	57,565	58,286	111,362
Federal Territory.....	5	48,124	93	4385	407	1,288
N. Territory.....	200	1,707,392	5842	35,124	32,237	50,617
Total.....	22,647	224,921,708	276,360,834	28,697,700	25,306,781	19,003,633

The private railways opened for general traffic in 1919 had a mileage of 11,025 and not opened for general traffic, of 18,085.

A summary of the total mileage of the Australian railways open for traffic showed some 25,652 miles of various gauges, as follows:

	Miles
New South Wales Government Railways.....	4824
Victoria Government Railways.....	4189
Queensland Government Railways.....	5469
South Australia Government Railways.....	2289
Western Australia Government Railways.....	3538
Tasmania Government Railways.....	601
Commonwealth Government Railways.....	1733
Private companies' railways.....	3009
Total Australian railways.....	25,652

The New South Wales State Railways in 1921 were practically all of the standard gauge, 4 ft. 8½ in. The Victorian State Railways were nearly all of the 5 ft 3 in. gauge. The Queensland State Railways were of the 3 ft. 6 in. gauge. The South Australia State Railways comprise 1080 miles of 5 ft. 3 in. and 1029 miles of 3 ft. 6 in. gauge. The Western Australia State Railways' entire track of 3353 miles was of 3 ft. 6 in. gauge. The Tasmania State Railways were of 3 ft. 6 in. gauge. The Commonwealth Government Railways (chiefly in the states of South Australia and Western Australia) comprised 1051 miles of 4 ft. 6 in., 478 miles of 3 ft. 6 in. and in the Northern Territory 200 miles of 3 ft. 6 in. gauge. The private company lines comprised 1609 miles of 3 ft. 6 in. gauge and 1070 miles of 2 ft. 6 in. gauge. The unaccounted for gauges are of comparatively unimportant feeder lines varying from 1 ft. 8 in. to 3 ft.

The commission appointed by the Federal government in December, 1920, to investigate the subject of a uniform railway gauge for Australia recommended the adoption of the 4 ft. 8½ in. gauge, which had been used on the New South Wales Government Railways from the very beginning and which also was deliberately adopted for the Trans-continental railway of the Federal government from Kalgoorlie to Port Augusta, which was opened in 1917. The estimated cost in 1913 of the general conversion of the Australian railways to the 4 ft. 8½ in. gauge was \$115,000,000, but at the conference of the chief civil engineers of the different state railways held in December, 1920, it was estimated that the conversion of the whole of the existing railways would amount to \$468,000,000. Therefore it was suggested as an initial undertaking that the gauge be made uniform between the five state capitals. This, at prevailing prices, was estimated to cost \$132,500,000, and brought up the very serious question of finance, which was to be discussed in a general conference called to develop a systematic plan for the entire conversion work. Such an undertaking was not altogether promising in view of the fact that the annual report of the government railways of South Australia for the fiscal year ended June 31, 1921, showed a deficit of \$2,733,550 (£ to \$ at par). As in other countries this loss was due to increased costs—primarily wages—which increased rates were not sufficient to cover. The lines totaled 2333 miles, of which some 1209 miles were of 3 ft. 6 in. gauge and 1124 of 5 ft. 3 in. gauge. The New South Wales Railways for the same period showed a deficit

of \$2,200,653. The mileage of these lines was 5043.

ARMY AND NAVY. The principle of military service is universal compulsory training and the system rests on defense acts after 1903, the main legislation having been passed in 1903 and 1904, and later amended by various enactments. Military service in time of war under the original defense acts was required of every male inhabitant between the ages of 18 and 60. Liability to military training was imposed by the Act of 1909, which was the first measure of the kind in any English-speaking country. There was a division into junior cadets of 12 to 13 years of age, and senior cadets of 14 to 18 years, which aimed at the physical development of the young. Between the ages of 18 and 26 the citizen forces were trained during 166 days each year for 2 years and were then registered for a period of 6 years. A plan was proposed in the latter part of 1920 whereby permanent troops were to be maintained only in sufficient number to administer and instruct the citizen forces. A supplemental organization consisted of a series of rifle clubs which constituted a military reserve. The total military forces including rifle clubs on June 30, 1919, were 264,884.

In 1920 the sea-going fleet consisted of 6 submarines, 6 destroyers, the light cruiser, *Brisbane*, the training cruiser, *Sydney* and 2 sloops. The personnel at that time totaled 10,697 including those under training and the Royal Australian Naval Brigade. In addition to the above vessels the British government recently presented to the Commonwealth 19 vessels. The estimates for 1920-21 were £3,265,000. In 1921 measures were under consideration for the establishment of a combined military and naval air corps.

GOVERNMENT. Executive power is vested in the King and exercised by the Governor-General aided by an Executive Council of responsible Ministers, who must be members of the Federal Parliament. Legislative power so far as it is not expressly in reserve to the states is vested in a Federal Parliament consisting of a Senate and a House of Representatives. The Senate is made up of 6 Senators from each of the original states elected for 6 years, to be renewed to the extent of one-half each 3 years, and the House of Representatives consists of twice as many members as there are Senators, the representation being in proportion to the population according to the latest enumeration. The representation was as follows according to the population down to 1920: New South Wales, 27 members; Victoria, 21; Queensland, 5; Tasmania, 5; (?). The Governor-General at the beginning of 1921 was Lord Forster of Lepe and the Ministry was as follows: Prime Minister and Attorney-General, W. M. Hughes; Navy, William Henry Laird Smith; Treasurer, Sir Joseph Cook; Defense, George Foster Pearce; Repatriation, Edward Davis Millen; Public Works and Railways, Littleton Ernest Groom; Home and Territories, Alexander Poynton; Trade and Customs, Walter Massey Greene; Postmaster-General, George Henry Wise; Vice-President of the Executive Council, Edward John Russell; Assistant Minister for Defense, Sir Granville de Laune Ryrrie; Assistant Treasurer, Arthur Stanislaus Rodgers. For new Ministry, see below.

HISTORY. The project for land settlement proposed by Sir Joseph Carruthers, former prime minister of New South Wales attracted much interest toward the close of the year. It aimed to open up for settlement a vast tract of Crown lands with the design of establishing in the course of the next twenty or twenty-five years a million settlers on a million separate farms, most of them to come from Great Britain; and it included ambitious plans for the building of railways, roads, and waterworks for the purpose. The acreage of the Crown lands was placed at 1,740,000,000, while only 163,000,000 were in private hands. Another important development scheme was the government's plan for the irrigation of an extensive region by means of the Murray River which forms the boundary between South Wales and Victoria before it enters South Australia. A plan formed conjointly by these three states involved the building of a great dam and reservoir near Albury and a reservoir near the boundary of South Australia, the undertaking being on a vast scale comparable only to the Nile and Mississippi irrigation systems. The area affected was over 240,000 square miles. The immigration question continued to be discussed throughout the year.

IMMIGRATION QUESTION. The principal point in the problem was the fact that although the Australian continent was one-tenth larger than the United States it had a population only about as large as that of the city of New York, while the neighboring continent of Asia had an enormous mass of inhabitants and in certain regions suffered from excess population. The Australians naturally wished to keep their continent for the white race and feared the influx of Asiatics. It was announced by the Australian minister of defense toward the close of the year that so far as former German New Guinea was concerned Asiatic immigration was prevented except for the arrival of Japanese laborers occasionally to take the place of those who had already been there. In Australia, Asiatic immigration was definitely prohibited with the exception that Asiatics might enter as students, merchants, or travelers.

The Australian government was highly dissatisfied with the joint administration of the New Hebrides by Great Britain and France. See the article **NEW HEBRIDES**. The Australians complained that they had not been represented at the Anglo-French conference on the subject or consulted in the negotiations. Among the British residents were many free or escaped convicts from Australia or New Caledonia. While France claimed a settlement of this question in her interest, the Australians on their side favored the purchase of the islands and the Australian parliament offered the sum of £500,000 for them. It was proposed that Great Britain should receive this amount and that the French share should apply to the extinction of the war debt of France to Great Britain.

On December 27 the ministry was reconstituted as follows:

Prime Minister and Minister for External Affairs, W. M. Hughes; Home and Territories, George Foster Pearce; Repatriation, E. D. Millen; Attorney-General, L. E. Groom; Navy and Defense, Maesy Greene; Trade and Customs, A. S. Rodgers; Postmaster-General, Alexander Poynton; Treasury, S. M. Bruce; Works and

Railways, R. W. Foster; Vice President of the Executive Council, J. Earle. See **EXPLORATIONS**.

AUSTRIA. A republic of central Europe, proclaimed, Nov. 12, 1918, and comprising territories defined by the treaty of Saint Germain, signed Sept. 10, 1919. It includes the following seven provinces: Upper Austria, Lower Austria, Tirol, Salzburg, Styria, Carinthia, Vorarlberg, and the city of Vienna; also the Burgenland, that is to say, the German and western portion of Hungary, which under the terms of the treaty was added in 1921. The area of the former Austrian provinces was 39,012 square miles, and the population, according to the census of Dec. 31, 1910, was 7,529,935. A census of the new republic was taken, Jan. 31, 1920, and the details of it were included in the preceding **YEAR BOOK**. The total population on that date was 6,139,197 of whom 2,940,346 were males and 3,198,851 females. The Burgenland had a population estimated at about 439,000 in 1920. The total population showed a falling off of 3.6 per cent since 1910, and the male population of 6.61 per cent. The chief cities with their populations in 1920 are: Vienna, 1,842,005; Graz, 157,032; Lins, 93,473; Innsbruck, 55,659. Official estimates of the number of Austrians killed in battle range from 160,000 to 180,000, and the total loss due directly or indirectly to the war based on the normal rate of increase in population during peace, was placed at 814,461.

EDUCATION. Education is compulsory between the ages of six and fourteen. In 1918 there were 4763 elementary schools with 30,667 teachers and 914,258 pupils. Secondary education is supplied by the *gymnasias* and *real-schulen* of which, in 1917-1918, the former numbered 73 with 20,955 pupils, and the latter, 38 with 14,632. There were also secondary schools for girls, numbering 26 with 4896 pupils. There were four universities maintained by the state as compared with eight in the former kingdom. The universities and the number of teachers and students in 1917-1918 are as follows: Vienna, 810 teachers and 5510 students; Graz, 232 teachers, 1142 students; Innsbruck, 164 teachers, 982 students; and Salzburg (numbers not available). There were two technical high schools, one at Vienna with 212 teachers and 1292 pupils, and the other at Graz with 72 teachers and 186 students; and 18 theological schools, of which 15 were Roman Catholic. In 1918 there were also 37 training colleges for teachers with 736 professors and 5043 students.

PRODUCTION. The chief occupation is agriculture. The total area under cultivation in 1919 was 4,084,121 acres, of which 2,123,175 were in Lower Austria, and 929,988 in Upper Austria. The chief crops in 1920 with their acreage and yield in metric tons were as follows:

Crop	Acreage	Met. tons
Wheat.....	374,032	149,515
Rye.....	688,687	251,410
Barley.....	240,915	97,207
Oats.....	658,740	187,730
Potatoes*.....	290,697	584,996
Turnips*.....	87,285	536,182

* Only 1918 figures were available.

The degree of recovery of the agricultural industry of Austria was indicated by the following figures, giving the official estimate of the





**AUSTRIA, HUNGARY,
CZECHO-SLOVAKIA,
ROUMANIA,
AND JUGO-SLAVIA**

SCALE OF STATUTE MILES
0 20 40 60 80 100 120

SCALE OF KILOMETERS
0 20 40 60 80 100 120 140 160 180 200

Important towns are shown in heavy face type
Railways Canals

acreage and yield of the most important grains for 1921, compared with the previous year and the 1904-13 average:

ACREAGE AND YIELD OF GRAINS

Grains	Average, 1904-13		1920		1921	
	Acreage	Metric tons	Acreage	Metric tons	Acreage	Metric tons
Wheat.....	465,000	254,000	371,000	148,000	378,000	211,000
Rye.....	1,013,000	553,000	711,000	255,000	758,000	398,000
Barley.....	336,000	170,000	238,000	96,000	267,000	143,000
Total.....	1,814,000	977,000	1,320,000	499,000	1,403,000	752,000

The production of foodstuffs is insufficient for the country's needs, and the distress arising from the scarcity has been extreme. The mineral resources were diminished as the result of the war. The production for 1920 was as follows: Lignite, 2,387,996 tons; anthracite, 133,173 tons; iron ore, about 2,000,000 tons; pig iron, about 500,000 tons. In 1920, 11 anthracite mines were worked, and 61 lignite mines. There are also resources of zinc, copper, lead, salt, and silver and gold ore.

ECONOMIC CONDITIONS. According to expert calculations the cost of living in Austria had increased more than in any other of the central European countries. The index figure based on 100 in 1914 was 1788 in 1918; 5570 in 1920; and 11,000 in June, 1921. The index figure of the Austrian Statistical Bureau for 1921 based on 100 on January 1 of that year had risen to 578 on November 18. Wages rose continually during these periods, but did not keep pace with the cost of living. In December the average monthly wage of skilled workmen was from 12,000 to 18,000 crowns. Unemployment diminished greatly from May 1, 1919, when 132,000 were reported to be out of employment. In January, 1921, the figure was 24,293 and it remained near that point during the year, being 24,158 on October 1. The above figures are exclusively for the city of Vienna, but they suffice to indicate the conditions, because, during the first six months of 1921, 83 per cent of the unemployed were in that city. The largest numbers of unemployed were in the metal industries and in hotels and restaurants. The chief difficulties were the coal shortage, the high freight rates, the depreciation of the crown, and the German competition in the domestic market. Only about one-fifth of the necessary coal was produced in Austria, and importation was checked by the high freight rates and the depreciation of the crown. There was, however, a slight increase in coal production during the first eight months of 1921. Some of the chief industries had made hardly any advance toward recovery. The leather industry toward the close of the year had attained about 35 per cent of its prewar activity; the textile industry had reached only about 10 per cent, and was totally unable to supply the home demand of textiles.

Toward the close of the year the cost of living had greatly increased, the government index figure for September being 215 on the basis of 100, as the index for January, 1921, based on a family of four persons, and during the following month the index increased. There was a serious condition of unemployment throughout the year. In Vienna the number officially reported on September 24 was 22,525 of whom 9642 were metal-workers. There was a slight increase in

coal production during the first eight months as compared with the first eight months of 1920, the output being 2,200,000 tons as compared with

2,100,000 tons. In foreign trade the total imports of coal during the first half of 1921 were 3,800,000 metric tons which was an increase over the same period in the preceding year.

In the closing months of the year the government was making desperate efforts to increase its income and avert disaster by raising the postage, telephone, and telegraph rates, railway fares, and the prices of tobacco, gas, electricity, and food, in some cases by as much as several hundred per cent. The discontinuance of government food subsidies was announced, although the government asked for unlimited authority on January 1 to borrow money for further purchases of food and raw materials. An unofficial estimate for the deficit of the current half year was 100,000,000,000 crowns. The official estimated deficit for the fiscal year 1921-22 of 165,000,000,000 crowns was criticised as too optimistic and the deficit was placed by some economists as high as 400,000,000,000 crowns. There was a certain amount of industrial activity with a fair demand for products, but it was doubtful, considering the circumstances of production, whether real profits were being made. There were 19,000 unemployed in Vienna in November, consisting mainly of metal-workers (7000) and city employees (5000). There was sufficient grain supply until December 3 and contracts were in force covering the grain supply up to January 1. The cost of living was steadily increasing. The official index figure (based on 100 for Jan. 1, 1921) had increased to 337 from 215 in September.

COMMERCE. Total imports into Austria in 1920 were 60,610,719 quintals (1 quintal equals 110 pounds), and exports from Austria were 13,175,800 quintals. The chief imports were grain, flour, and rice, amounting to 6,104,504 quintals; fuel and coal, 41,644,787 quintals; glass and stoneware, 626,553 quintals; and coal, 181,370 quintals; while the chief exports were wood and manufactures thereof, 3,997,688 quintals; manufactures of textiles, 873,948 quintals; paper and manufactures thereof, 887,599 quintals; minerals, 3,009,035 quintals. It is interesting to note that Austria's foreign trade was mainly conducted with Czecho-Slovakia and Germany, with a total trade of around 26,500,000 quintals. The total trade with the United States was 3,104,788 quintals. Complete figures for foreign trade in 1921 were not available, but the following table shows imports and exports for the first six months of 1920 and 1921, respectively:

Period	Imports, tons	Exports, tons
January-June, 1920.....	2,066,000	222,400
January-June, 1921.....	3,800,000	700,000

Iron and steel are the most important exports Austria has to sell. During 1920 shipments amounted to 184,634 tons, an advance of 109,078 tons over the latter half of 1919. The largest item of export was 75,000 tons of pig iron, 63,000 tons of which were sold to Czecho-Slovakia. This requires comment, since the Austrian industry was held back by a shortage of raw material and the country had to import a large quantity of manufactured articles. The reason was the convention with Czecho-Slovakia according to which Austria was required to give up pig iron in order to secure indispensable coke. As might be expected from its lack of iron, Italy received the largest amount of Austria's exports, importing 31,000 tons, including 16,000 tons of finished goods. Next came Hungary and Jugo-Slavia, with purchases to the amount of 16,000 and 14,000 tons, respectively. Owing to their comparative dearth of industrial plants and comparative abundance of food they are the natural complements of Austria. In less degree the same is true of Poland and Roumania, which bought 10,000 and 7000 tons, respectively. Iron and steel imports into Austria were 116,699 tons, an advance of 42,605 tons over the latter half of 1919. Of this quantity, 57,000 tons came from Czecho-Slovakia, of which the largest item was 26,000 tons of finished manufactures. The Austrian market was made favorable for Czecho-Slovakian sellers through the working of the commercial convention already referred to. The large item of 41,000 tons from Germany consisted mainly of pig iron, brought in to replace the export of this commodity to Czecho-Slovakia.

A new commercial treaty was signed on September 30 between Austria and Roumania, in which each party agreed practically to give the other the most-favored-nation treatment.

FINANCE. The budget for 1920-1921 indicated an expenditure of 33,194,000,000 crowns as compared with 16,873,000,000 in 1919-1920, and the deficit was 12,539,000,000 crowns, an increase of 1,960,000,000 over the preceding year. On January 11 the government declared itself at the end of its resources and informed the Allied Powers that it was ready to retire, January 15, and give the administration of the country over to the Reparations Commission. Thereupon the Supreme Council invited the Austrian government to send representatives to a conference on the subject of financial relief. This conference was held, March 12, but aside from expressions of good will on the part of the Allies nothing definite came of it. According to the budget figures for the fiscal year, 1921-1922, announced by the finance minister, November 8, the deficit was about 165,000,000,000 crowns, which was three times as large an estimate as had been made in July. Even this was criticised by economists as too low; and according to a well-known Austrian economic writer, the real deficit was about 400,000,000,000. The public debt according to the figures published, November 8, was 667,745,000,000 crowns which included the old Austro-Hungarian debt as well as the debts of the present government. The old debt amounted to 144,700,000,000 paper crowns. Measures of financial reorganization were undertaken by the Austrian government in agreement with the Finance Committee of the League of Nations. The main points in the plan of reorganization

were as follows: Equalisation of income and expenditure so as to avoid further deficit; regulation and reform of the currency to prevent further depreciation; reductions as soon as possible of the state contributions for the cheapening of the cost of provisions; reduction of the personnel of the government service. The government urged the Finance Committee of the League to procure the foreign credits necessary for providing food-stuffs. As means of preventing depreciation of the crown, it declared its readiness to give the exclusive right to issue notes to a new bank which should be founded in part with foreign capital. By October the crown had depreciated to such an extent as to be practically worthless and offers of 3400 crowns for a dollar were reported in Vienna during October, the normal value of the crown being five to the dollar. The effect on business was destructive. As in the case of Germany there was an influx of foreigners seeking to profit by the fall of exchange before it had produced its effect upon the prices of goods. For a few days trade on the stock exchange was suspended.

COMMUNICATIONS. The railways of Austria had a total length of 6940 kilometres, most of them state-owned and all under government control. The expenditures for the railways, according to the 1921 budget, amounted to 17,000,000,000 crowns of which 8,000,000,000 were for wages; and the receipts to only 7,800,000,000, the deficit being due to the drop in the value of the crown. Owing to the loss of ships and barges during the war, the Danube river transportation which before the war was important had virtually ceased to exist.

ARMY. For the states of Austria-Hungary before the war, see preceding YEAR BOOKS. At the end of the war the whole military system had collapsed, but a defense force was created in 1919 with a strength of about 34,000 men. By the terms of the treaty of Saint Germain, compulsory military service was abolished, and the Austrian army was limited to 30,000 officers and men. It was further provided that no mobilization measure should be taken, and that police officers, gendarmes, etc., should be kept down to the limit of 1913. For further details, see preceding YEAR BOOK.

GOVERNMENT. Portions of the former Austro-Hungarian Empire began to split off and declare their independence in October, 1918, and what had been the Empire was in the course of the next few months divided among the separate states of Austria-Hungary, Czecho-Slovakia and Jugo-Slavia. On the proclamation of the Austrian Republic, Nov. 12, 1918, the National Assembly appointed a provisional cabinet, and provided for the election of a National Constituent Assembly. This body was elected on the basis of universal suffrage, Feb. 16, 1919, and set to work on the drafting of a constitution which was published, Feb. 15, 1920, and went into force, Nov. 10, 1920. Executive power was vested in a president, chosen for four years, and not eligible for re-election more than once; and in a ministry, responsible to the assembly. Legislative power was vested in an assembly, elected for four years by popular vote; and an upper house elected by the provincial diets in proportion to the population, this upper house having only advisory powers. The new constitution declared Austria

a democratic republic, composed of seven provinces and the city of Vienna; abolished all special privileges; and granted equal rights to all citizens. The president and the ministry at the beginning of 1921 were as follows: At the beginning of 1921 the President of the Republic was Dr. Michael Hainisch, and the ministry was constituted as follows: Chancellor and Minister for Foreign Affairs, Dr. Michael Mayr; Vice-Chancellor and Minister of Education, Walter Breisky; Commerce, Edouard Heini; Social Insurance, Dr. Joseph Resch; Agriculture, Alois Hauers; Finance, Dr. Ferdinand Grimm; Justice, Dr. Rudlof Paltauf; Food Controller, Dr. Alfred Grünberger; Interior and War, Walter Breisky; Railways, Dr. Karl Pesta.

GERMAN UNITY. After the Armistice the element in Austria which agitated for union with Germany gave the Allied Powers much concern and caused especial alarm in France where various rumors were constantly circulating in regard to it. On April 14 the Allied representatives demanded that the Austrian government should suppress agitation to this end under pain of the withdrawal of the Allied proposals for financial relief.

TIROL. There were frequent reports of monarchist movements in the Austrian Tirol and early in October, according to press dispatches, the monarchist party was already in considerable strength there. It was said that the inhabitants desired an independent republic in alliance with Bavaria and that a considerable element favored the restoration of the Wittelsbach dynasty; also that large bodies of troops had been recently moved from Bavaria into the province. There was much alarm in Switzerland over this danger in their neighborhood. In the Swiss parliament the government declared that if Austria should lose the Tirol, the Austrian province of Vorarlberg ought to have the right to decide its own destiny. In that case it was expected that the latter province would vote to join Switzerland, because at a referendum taken on that subject in May, 1919, 81 per cent of the votes favored union with Switzerland. On that occasion the Swiss government refused the offer lest it might complicate the European difficulties.

BURGENLAND. In October representatives of Austria and Hungary had agreed, in the presence of the Italian Foreign Minister acting as mediator, on a plebiscite at Odenburg and certain other centres in Burgenland to decide whether they would join Austria or Hungary. This was held toward the end of the year. See HUNGARY.

OTHER EVENTS. On May 29 it was announced in the press that Salzburg had cast 90 per cent of its votes in favor of union with Germany. In September it appeared from newspaper accounts that an American syndicate under Charles H. Sabin had acquired the estate of Archduke Frederick.

AUSTRIA-HUNGARY. See NAVAL PROGRESS.

AUTHORS' LEAGUE OF AMERICA. An organization founded in 1912 for providing mutual assistance in the technicalities and difficulties of publishing and copyrighting. Confidential information is supplied its members regarding managers, producers, etc. Recently the League was divided into four Guilds to simplify its operation. They act separately but are subject to the government and discipline of the League. The total membership at the close of 1921 was 1822, divided among the Guilds as

follows: The American Dramatists, 250; The Authors' Guild, 156; The Guild of Free Lance Artists, 253, and The Screen Writers' Guild, 130. Membership is limited to persons of recognized standing in the literary or artistic professions. An Authors' Fund is maintained for the purpose of providing aid to those working in the fields embraced by the League who may be in need through illness, age, or misfortune. The annual meeting in 1921 was held in April; also in November, due to a change of constitution which makes the fiscal year begin October 1. Previous presidents of the League are Rex Beach and Winston Churchill. Following are the officers for 1921: President, Jesse Lynch Williams; Vice-President, Channing Pollock; Secretary-Treasurer, Eric Schuler. Officers of the Guilds are: American Dramatists, Owen Davis, President; Percival Wilde, Secretary; The Authors' Guild: President, Louis Joseph Vance; Secretary, Ellis Parker Butler. The Guild of Free Lance Artists: President, C. B. Falls; Secretary and Treasurer, F. G. Cooper; The Screen Writers' Guild: President, Frank E. Woods; Secretary, Dwight Cleveland. Headquarters of the Screen Writers' Guild are 6718 Sunset Boulevard, Hollywood, Calif. Headquarters of The League are maintained at 22 East 17th Street, New York City. The managing secretary was Luise M. Silcox.

AUTOMOBILES. The year 1921 was certainly one for readjustment in the automobile industry and conditions were very different from those of previous years. Naturally the decreased purchasing power of the farmers and many other elements of the country was apparent, and there was a decline in prices which became very marked late in the year, when a number of manufacturers announced their prices and styles for the spring of 1922. While profits in the motor industry in 1921 had been small, or even absent in some cases, yet there was in general a cleaning out of high inventories and adjustment of finances and more healthy and efficient conditions of production were established. These seemed to indicate a stabilizing of the industry so that it would be ready for a steady demand and particularly for a larger export business. Of course the use of the motor car for passengers was absolutely established, but there were important developments in the field of motor busses and motor transport of freight. Here it was believed that conditions would bring about a more efficient handling of passengers and goods in connection with steam and electric railways, particularly at terminals, though as it was in 1921 over 1,200,000,000 tons of freight were handled by motor trucks.

By the end of 1921 the number of automobiles registered in the United States was approximately 10,000,000, of which 9,000,000 were motor cars and 1,000,000 motor trucks. With 1,680,000 new cars added in 1921 it was estimated that the replacements would amount to about 1,400,000 cars.

REGISTRATION OF CARS AND TRUCKS BY STATES

State	1920		
	Passenger cars registered in 1920	Trucks registered in 1920	Total registration 1920
Alabama.....	61,941	12,696	74,637
Arizona.....	29,868	4733	34,601
Arkansas.....	.....	.....	59,082

REGISTRATION OF CARS AND TRUCKS BY STATES
1920—Continued

State	Passenger cars registered in 1920	Trucks registered in 1920	Total registration 1920
California.....	534,814	34,078	568,892
Colorado.....	121,506	7749	129,255
Connecticut.....	95,123	24,011	119,134
Delaware.....	.....	.....	18,300
District of Columbia.....	29,131	5030	34,161
Florida.....	63,466	10,448	73,914
Georgia.....	134,000	12,000	146,000
Idaho.....	.....	.....	50,861
Illinois.....	504,250	64,674	568,924
Indiana.....	300,226	32,841	333,067
Iowa.....	407,578	29,800	437,378
Kansas.....	.....	.....	294,159
Kentucky.....	99,437	13,246	112,683
Louisiana.....	66,000	7000	73,000
Maine.....	55,395	7512	62,907
Maryland.....	87,625	15,216	102,841
Massachusetts.....	223,112	51,386	274,498
Michigan.....	366,946	45,771	412,717
Minnesota.....	.....	.....	* 324,166
Mississippi.....	63,721	4765	68,486
Missouri.....	.....	.....	297,008
Montana.....	59,450	1200	60,650
Nebraska.....	200,000	19,000	219,000
Nevada.....	.....	.....	10,464
New Hampshire.....	30,240	4440	34,680
New Jersey.....	204,125	23,612	227,737
New Mexico.....	.....	.....	22,100
New York.....	521,417	148,873	670,290
North Carolina.....	127,405	13,455	140,860
North Dakota.....	.....	.....	90,840
Ohio.....	538,090	83,300	621,390
Oklahoma.....	204,300	8580	212,880
Oregon.....	.....	.....	103,790
Pennsylvania.....	521,835	48,329	570,164
Rhode Island.....	40,914	9563	50,477
South Carolina.....	.....	.....	93,843
South Dakota.....	112,589	7806	120,395
Tennessee.....	90,214	11,638	101,852
Texas.....	.....	.....	427,693
Utah.....	37,060	5556	42,616
Vermont.....	28,709	2916	31,625
Virginia.....	101,800	13,670	115,470
Washington.....	144,131	29,789	173,920
West Virginia.....	69,862	10,802	80,664
Wisconsin.....	277,093	16,205	293,298
Wyoming.....	.....	.....	23,926

Grand Totals.....9,211,296

* For three-year period ending Dec. 31, 1920.

For the first 10 months of 1921 the total registration reported was 10,259,164 or a net increase of 1,069,702 cars and trucks over 12 months in 1920.

The National Automobile Chamber of Commerce, through its general manager, Alfred Reeves, conservatively estimated the production of motor cars and trucks in 1921 at 1,680,000, which represented a decrease from the 1920 production of 24 per cent. This production embraced 1,535,000 cars and 145,000 trucks. The wholesale value of cars and trucks produced in 1921, \$1,222,350,000, showed a decrease from 1920 value of 45 per cent. The wholesale value of the motor cars produced in 1921 was \$1,088,100,000, while the value of motor trucks was \$134,250,000. The average wholesale price of a motor car in 1921 was \$702 as compared with \$897 in 1920. The average wholesale price of a motor truck in 1921 was \$968 as compared with \$1273 in 1920.

In 1921 the automobile industry, which had just rounded out twenty-eight years from the first car made in 1893, was ranked by the Bureau of the Census third among American manufactures; slaughtering and packing held first place, then came steel, and in a very respectable third position, automobiles, though among finished products the automobile industry stood first. In 1921 manufacturers and owners of automobiles

paid special taxes amounting to \$228,759,000, of which the Federal government received \$115,546,000 and there was paid to state governments in license fees \$108,213,000. In addition there was paid in miscellaneous taxes \$5,000,000.

According to the annual report of the United States Commissioner of Internal Revenue, for the fiscal year ended June 30, 1921, the automotive manufacturers and accessory manufacturers paid \$115,546,000 in sales taxes to the government, representing sales by them of \$2,446,125,000. The sales taxes were divided as follows: Passenger cars, \$64,388,000; accessories, \$39,518,000, and trucks \$11,640,000. The total amount was well distributed over the entire country and proved the healthy condition of the industry even in an off year.

In 1921 there were 105 motor car factories and 140 motor truck factories in the United States located in 32 different States. The employees engaged in car and truck manufacture totaled 256,000. In 1921 the passenger car dealers numbered 38,216, motor truck dealers 24,488, garages 59,093, and repair shops 55,521.

The value of exports of motor vehicles and parts, including engines and tires shipped from the United States in 1921, aggregated \$102,945,610. There were exported 30,639 motor cars valued at \$33,712,208, and 7748 motor trucks valued at \$11,457,616. Automobiles were exported during the year to 114 different countries.

Of the total oil output of the United States motor vehicles consumed 27 per cent of which 24.6 per cent was refined in the form of gasoline and 2.4 per cent was lubricating oils. In 1921 the gasoline production of the United States was 5,360,014,000 gallons and the consumption 4,506,706,900 gallons; or an increase in production over 1920 of 9.3 per cent and an increase in consumption of 5.9 per cent.

The relation of the rubber industry to the automobile was shown in the production of tires. See RUBBER. During the year there were produced 19,379,000 tire casings; 24,157,000 tire inner tubes; and 377,000 solid tires.

The motor vehicle was no less indispensable to the American farm than to other industries as the number of farms which had automobiles on Jan. 1, 1920, according to the Bureau of the Census, was 1,979,564, or 30.7 per cent of all farms in the United States. These farms reported a total of 2,146,512 automobiles on the census date. More than 100,000 automobiles on farms in the following States were reported in 1920: Iowa, 177,558; Illinois, 139,090; Ohio, 128,384; Kansas, 111,055; Minnesota, 107,824; Texas, 105,292; Nebraska, 104,453; and Indiana, 102,122. Motor trucks were reported on 131,551 farms in 1920, or about 2 farms out of every 100 in the United States as a whole. The number of motor trucks on these farms was 139,169. At the end of 1921 the National Automobile Chamber of Commerce estimated that 2,850,000 motor cars and 150,000 motor trucks were owned by the farmers of the United States. Also that during the year 134,400,000 tons of farm products were handled by motor transport.

Motor bus transportation figured in 1921 on a larger scale than ever, it being estimated that there were about 20,000 motor buses in operation. Some 12,000 schools were using motor bus transportation for children, while 600 cities had organized motor bus lines.

There were 1500 organized public motor express lines in the United States in 1921, while during the year 6,000,000 head of live stock were transported by motor truck. On 35 street railway lines motor busses were used and 12 steam railroads employed motor trucks with flanged wheels on regular tracks.

DEATHS FROM AUTOMOBILE ACCIDENTS IN 1920. According to the Bureau of the Census, during the year 1920 there were 9103 deaths resulting from accidents caused by automobiles and other motor vehicles, excluding motorcycles, as recorded within the death-registration area of the United States, which area contains 82 per cent of the total population. This number represented death rate of 10.4 per 100,000 population, as against 9.4 in 1919, 9.1 in 1918, 8.9 in 1917, 7.3 in 1916, and 5.8 in 1915. Between 1915 and 1920, therefore, the death rate per 100,000 population from motor-vehicle accidents and injuries increased by about four-fifths.

The actual number of deaths resulting from motor-vehicle accidents in the 25 States from which data for 1915 were available increased from 3571 in that year to 7433 in 1920, the rate of increase being 108.1 per cent. During the same period, according to the Bureau of Public Roads, the number of registrations of automobiles, motor trucks, and commercial motor vehicles in the same States increased from 1,767,055 to 6,085,150, the rate of increase being 244.4 per cent. The death rate per 1000 motor vehicles in use in the 25 States in question decreased from 2 in 1915 to 1.2 in 1920, being only three-fifths as great in the later as in the earlier year.

RACING EVENTS. Roscoe Sarles and Tommy Milton were the leading automobile drivers of the year. Sarles won the Uniontown race of 225 miles and the Santa Rosa race of 150 miles. Milton was victor in the Indianapolis 500-mile classic and in the 250-mile contest held at Tacoma. At Indianapolis he drove his Frontenac at the rate of 89.62 miles an hour, or slightly under the record time of 89.84. Jimmy Murphy added to his fame by winning the French Grand Prix race and establishing a new world speed record in the San Carlos race at San Francisco where he averaged 110 6:10 miles an hour for the 250 miles.

AVIATION. See **AERONAUTICS.**

AYRES, STEPHEN COOPER. Oculist, died, September 2. He was born at Troy, Ohio, June 5, 1840, graduated at Miami University in 1861, and at the Medical College of Ohio in 1864, and served in the Civil War first as a private in an Ohio regiment and later as medical cadet, 1863, and as assistant-surgeon 1864 in the regular army. He afterwards practiced medicine at Cincinnati where he was a lecturer at the Cincinnati Hospital and a professor in the Medical College of Ohio, afterwards the University of Cincinnati.

AZACARATE, SEÑOR TOMAS DE. See **NECROLOGY.**

AZERBAIJAN. A portion of Trans-Caucasia, consisting mainly of the two former Russian provinces of Baku and Yelisavetpol, bounded on the east by the Caspian Sea, on the north by the Caucasus and Daghestan, on the west by Georgia and Armenia, and on the south by Persia; with an area of about 40,000 square miles, but claiming additional territory which would bring

AUTOMOBILE FATALITIES

Deaths and death rates from accidents caused by automobiles, motor trucks, and commercial motor vehicles in the registration area (exclusive of Hawaii), in the registration States, and in 66 cities in 1920.*

Area	Number of deaths						Rate per 100,000 population					
	1920	1919	1918	1917	1916	1915	1920	1919	1918	1917	1916	1915
Registration Area.....	9103	7968	7424	6677	5193	3978	10.4	9.4	9.1	8.9	7.3	5.8
Registration States *.....	8878	7771	7211	6021	4737	3589	10.3	9.3	9.1	8.6	7.1	5.6
California.....	734	647	533	554	478	411	21.1	19.2	16.3	17.6	15.7	14.0
Colorado.....	117	118	119	93	71	53	12.4	12.7	13.0	10.3	8.0	6.1
Connecticut.....	218	207	183	192	171	106	15.6	15.1	13.7	14.6	13.3	8.4
Delaware.....	22	23	†	†	†	†	9.8	10.4	†	†	†	†
Florida.....	104	58	†	†	†	†	10.6	6.1	†	†	†	†
Illinois.....	728	522	464	†	†	†	11.2	8.1	7.3	†	†	†
Indiana.....	248	187	177	201	169	125	8.4	6.4	6.1	7.0	5.9	4.4
Kansas.....	155	98	129	106	92	45	8.7	5.6	7.3	6.1	5.3	2.6
Kentucky.....	85	71	92	63	41	39	3.5	2.9	3.8	2.6	1.7	1.7
Louisiana.....	90	57	78	†	†	†	5.0	3.2	4.3	†	†	†
Maine.....	43	45	41	31	35	21	5.6	5.9	5.4	4.1	4.6	2.8
Maryland.....	142	153	161	137	76	60	9.7	10.6	11.3	9.7	5.5	4.4
Massachusetts.....	454	524	476	382	304	265	11.7	13.7	12.6	10.2	8.3	7.3
Michigan.....	419	318	255	327	255	188	11.3	8.8	7.2	9.5	7.6	5.7
Minnesota.....	178	171	183	161	143	85	7.4	7.2	7.8	7.0	6.3	3.8
Mississippi.....	39	41	†	†	†	†	2.2	2.3	†	†	†	†
Missouri.....	231	244	239	229	187	122	6.8	7.2	7.1	6.8	5.6	3.6
Montana.....	45	44	64	59	42	31	8.1	8.1	12.3	11.7	8.6	6.6
Nebraska.....	104	†	†	†	†	†	8.0	†	†	†	†	†
New Hampshire.....	50	38	21	34	30	26	11.3	8.6	4.8	7.7	6.8	5.9
New Jersey.....	405	424	388	343	245	192	12.7	13.6	12.7	11.4	8.4	6.7
New York.....	1410	1354	1240	1084	836	692	13.5	13.1	12.2	10.8	8.4	7.1
North Carolina.....	133	104	79	65	54	16	5.2	4.1	3.2	2.6	2.2	0.7
Ohio.....	717	631	650	605	438	316	12.3	11.1	11.6	11.0	8.1	6.0
Oregon.....	87	70	66	†	†	†	11.0	9.0	8.6	†	†	†
Pennsylvania.....	1042	818	853	812	658	466	11.9	9.4	10.0	9.6	7.9	5.7
Rhode Island.....	78	87	68	56	53	57	12.8	14.5	11.4	9.5	9.1	9.9
South Carolina.....	91	73	56	30	27	†	5.4	4.4	3.4	1.8	1.7	†
Tennessee.....	130	100	82	69	†	†	5.5	4.3	3.5	3.0	†	†
Utah.....	51	37	46	32	31	23	11.3	8.3	10.5	7.4	7.3	5.6
Vermont.....	30	21	13	14	15	13	8.5	6.0	3.7	4.0	4.2	3.7
Virginia.....	97	116	98	52	62	45	4.2	5.1	4.3	2.3	2.8	2.1
Washington.....	184	148	151	117	82	105	13.5	11.0	11.4	9.0	6.4	8.4
Wisconsin.....	167	164	154	127	105	69	6.3	6.3	6.0	5.0	4.2	2.8

* Including the District of Columbia.

† Not admitted to registration area until a later date.

Notes. For figures by cities 1915 to 1919, see **YEAR BOOK** for 1920.

it to about 58,000 square miles; and with a population roughly estimated on the basis of Russian statistics at 4,615,000, of whom 3,482,000 were Moslems, 795,000 Armenians; the racial stock of the majority being Turk and Tartar. The capital is Baku with a population of about 250,000.

In 1920 the country, like the other Caucasian states, was under Soviet control, but there was a considerable element that struggled against it.

Patriotic bands were fighting for the country's independence and various native bodies were protesting against the Soviet government. At the end of October certain properties that had been taken away by the Soviet authorities were restored to their former owners. The treaty of October 13, signed by the government and the Turkish Nationalists, placed the newly created Armenian state of Nakhitchevan under the protection of Azerbaijan.

B

BACHAUS, WILHELM. See *MUSIC, Artists, Instrumentalists.*

BADEN. Former grand duchy of the German Empire, proclaimed a republic, Nov. 22, 1918; bounded by Bavaria on the east and Alsace-Lorraine and the Palatinate on the west; with an area of 5819 square miles, and a population in 1910 of 2,142,833; estimated in 1919 at 2,208,503, of whom 1,051,405 were males, 1,157,098 females. Capital, Karlsruhe with a population in 1919 of 135,952; largest city, Mannheim, 229,576; other cities with their populations: Freiburg, 87,946; Pforzheim, 73,839; Heidelberg, 60,831; Konstanz, 30,119; Baden, 25,444. Elementary instruction is free and compulsory, and is supported by the state or by the communes. No later figures were available than those given in the preceding *YEAR BOOK*. There are two universities—at Heidelberg and Freiburg—and there is an academy of arts at Karlsruhe, besides technical and commercial high schools, high schools for girls, training colleges for teachers, and various technical and special schools, 17 gymnasia, and 50 *real-schulen*.

The present constitution was proclaimed March 21, 1919, having been framed by the National Assembly which met Jan. 15, 1919. Its main features are given in the preceding *YEAR BOOK*. Executive power is vested in a cabinet of five ministers and four state councilors, the latter being without portfolios, who are all elected by the legislature, and of whom the chief is officially styled State President; and legislative power, in a single chamber, the Landtag, elected for four years in the proportion of one member to about 10,000 voters. The Landtag in session at the beginning of 1921 was elected Jan. 15, 1919, and its seats were distributed as follows: Centre, 39; Majority Socialists, 36; German Democratic party, 25; Conservatives, 7. The ministry or cabinet was made up at the beginning of 1921 as follows: President, and minister and justice, G. Trunk; social affairs and public work, A. Engler; interior, A. Remmele; finance, H. Köhler; education, H. Hummel. Of these two were Socialists, two belonged to the Centre party, and one to the Democratic party.

BAER, BEN. See *NECROLOGY.*

BAGOT, RICHARD. British novelist, died in Westmoreland, England, December 12. His literary work dealt largely with Italian subjects. He was born in November, 1860, and was privately educated. In 1882-1883 he was private secretary to the governor of Western Australia. In 1920 he succeeded to the estate of his nephew, Sir Alan Bagot of Levens. He was the recipient of special honors from the Italian government on account of his literary and international services. His publications include: *A Roman Missionary* (1899); *Casting of Nets* (1901); *The Just and the Unjust* (1902); *Donna Diana* (1903); *Love's Proxy* (1904); *The Passport* (1905); *Temptation* (1907); *The Lakes of Northern Italy* (1907); *Anthony Cuthbert* (1908); *The House of Serravalle* (1910); *My Italian*

Year (1911); *The Italians of Today* (1912); *Dar-neley Place* (1912); *The Gods Decide* (1918).

BAHA, ABDUL, or ABDUL BAHÁ ABBAS. Leader of the Bahai movement, died at Haifar, Syria, on November 28. The Bahai movement or Bahaism, of which he was the third great exponent had adherents in this country and all over the world. He was born in Shairaz, Persia, May 23, 1844. At the time of his birth this religious movement was developing under the leadership of Mirza Ali Mohammed known as the "Báb," who proclaimed the coming of a great world messiah. It was not a separate religion, so much as a body of rules and principles governing conduct, and of fundamental ideas at the root of all constructive religions. Mirza was assassinated in 1850. The next to take up the revelation was the teacher known as Baha-Ullah, who began his preaching about 1869. Abdul Baha was the eldest son of this prophet and upon the latter's death in 1892 became his successor as a leader of the movement. He was proscribed by the authorities and most of his life was spent either in prison or in exile. After the Young Turk revolution in 1907 he was released from prison and lived until his death at a villa on Mount Carmel, at Haifar. He was found there by the invading British during the war and General Allenby provided him with a bodyguard for his protection. Frequent messages were received from him during the debate over the League of Nations which he did not believe would put an end to war, but which he considered a step in the right direction. He had visited the United States in 1912 where he was not only welcomed by the societies of Bahaism that had developed here, but by several universities including Leland Stanford, where for several days he was a guest. No precise figures for the strength of the movement in this country are available but a recent estimate indicated that in the neighborhood of New York his followers numbered about 1200.

BAHAMAS. A group of West Indian islands, constituting the northern part of British West Indian colonies, and consisting of 29 islands, 661 small islets, and more than 3000 reefs, lying off the southeast coast of Florida. They are of coral formation, and about twenty of them are inhabited; area 4404 square miles; population estimated, Jan. 1, 1918, at 59,928. The chief islands and their populations in 1911 were as follows: New Providence (13,554), containing the capital, Nassau; Andros (7545); Eleuthera (6533); St. Salvador (5072); Abaco (4463); Long Island (4150); Exuma (3465). In 1919 there were 48 government schools with 7530 pupils, and 16 aided schools with 1035 pupils; also schools maintained by the Church of England and Roman Catholic Church, and private schools. Fruit production is important, and has latterly been on the increase. There are also sponge and turtle fisheries. The chief imports in 1919 were: Flour; cotton, linen, and woolen goods; spirits, wines,

and malt; butter, lard, etc.; and manufactures. The chief exports were: Sisal, sponges, and turtle shell. The imports in the calendar year 1919 amounted to £539,242, as compared with £367,180 in the preceding year, and the exports, £382,140 as compared with £278,171 in the preceding year. Over four-fifths of the trade has been with the United States. The revenue in 1919-20 was £204,296; the expenditures, £108,938. Governor at the beginning of 1921, Major Sir H. E. S. Cordeaux. The liquor trade gave greater opportunity for gain to the inhabitants that had ever been afforded before and in Nassau other business was largely abandoned on account of it. The situation arose as a result of Prohibition in the United States, the American customs being enormous. In the summer vessels under the British flag were supplying the American trade outside the three-mile limit although there was a difference in the point of view of the American and local authorities in that respect, the United States authorities contending that they had a right to seize British vessels at a distance of twelve miles from the shore and the British authorities denying it.

BAIER, VICTOR. American organist, died in New York, August 11. He was born in New York, July 25, 1861. At the age of ten he began his musical career as chorister at Trinity Church, New York. Then he lived some years in Jersey City as organist and choirmaster and director of singing in the public schools, returning, in 1884, to Trinity Church as assistant organist. From 1897 till his death he was principal organist.

BAIL, JOSEPH. Painter, died in December. His best known works were in the style of the Dutch and Flemish painters and excelled in depicting interiors. They were remarkable for the close and exact details, especially his paintings of women. His works have been highly successful, being admired for their sober and conscientious coloring, and he was regarded as among the first genre painters of our time. He received the medal of honor from the Salon in 1902.

BAILEY, FRANK HARLEY. Naval officer, died in El Paso, Texas, April 9. He was born at Cranesville, Pa., in June, 1851; graduated at the Naval Academy in 1875, and rose to the rank of chief engineer in 1896. During the Spanish War he served in the Philippine Islands, and distinguished himself for eminent services in battle. He attained the rank of captain, July 1, 1908, and rear-admiral, Feb. 13, 1913, retiring on account of age, June 29, 1913. He served for eight years as chief of the Bureau of Steam Engineering, and he was on duty at that bureau during the war with Germany.

BAKER, ALBERT C. See NECROLOGY.

BAKER, WILLIAM EDGAR. Civil engineer, died in New York City, November 7. He was born in Springfield, Mass., Oct. 18, 1856, and graduated in civil engineering in Lafayette College, Pa., in 1877. He was the chief engineer and general manager of several railways and was one of those who opened the way for the Canadian Pacific, leaving some interesting notes on that undertaking. From 1894 to 1899 he was the General Manager and Chief Engineer of the Metropolitan West Side Elevated Railway of Chicago, and was the General Superintendent of the Manhattan Railway in New York, 1899-1902, introducing the electric system. He was con-

sulted by the British experts in the construction of the London Underground.

BALFOUR OF BURLEIGH, ALEXANDER HUGH BRUCE, LORD. British peer, former cabinet minister, died early in July in London, England. He was born, June 13, 1849, educated at Eton and Oxford and was Secretary of the Board of Trade 1889-92. From 1892 to 1895 he was chairman of the London Water Supply Commission but when the Unionist party returned to power in 1895 became Secretary for Scotland. He retired from the Ministry in 1903 owing to his opposition to the measures of fiscal reform proposed by Mr. Chamberlain.

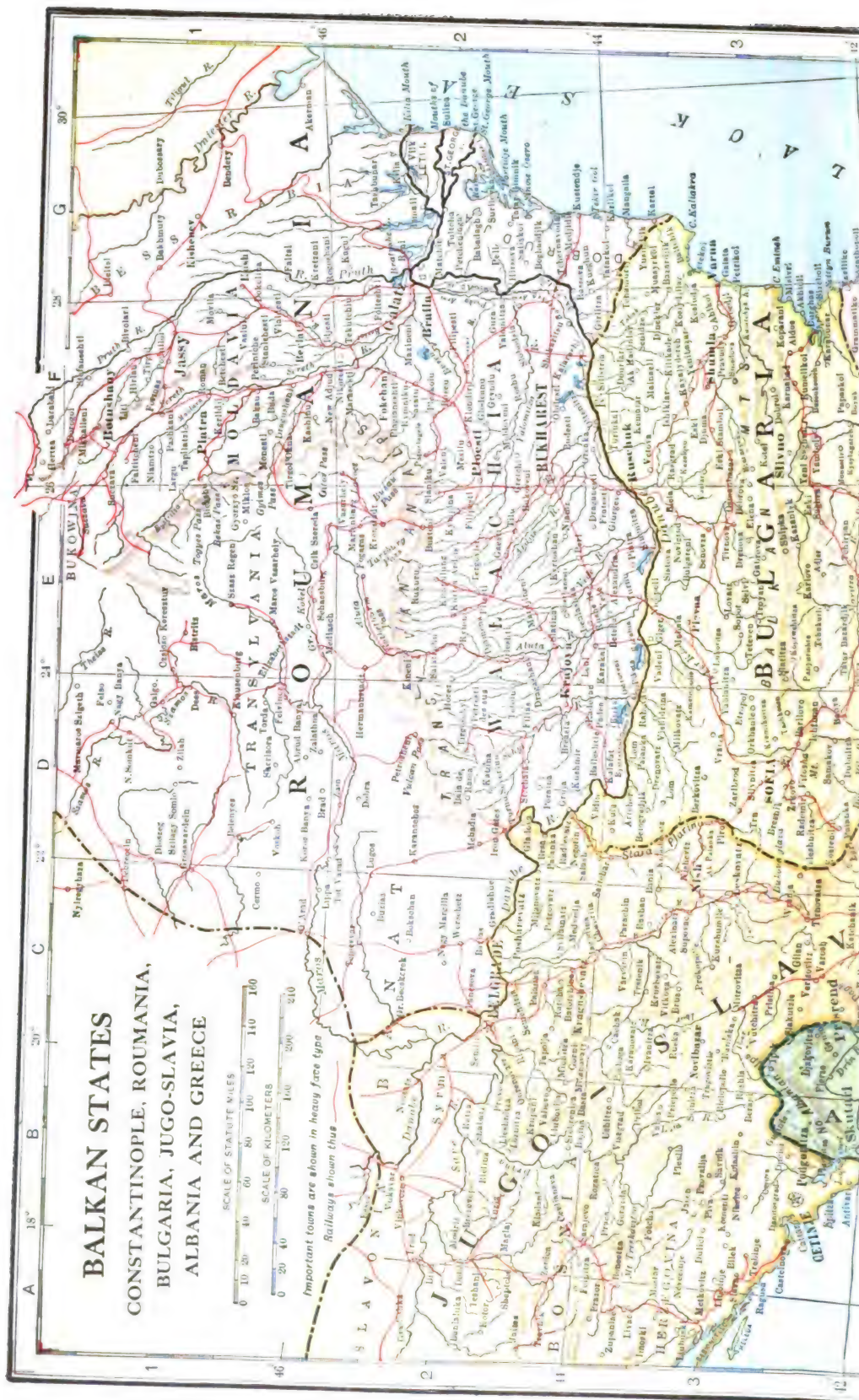
BALKAN STATES. The states which make up the Balkan peninsula in southeastern Europe and west of the Aegean sea. See ALBANIA, BULGARIA, CZECHO-SLOVAKIA, GREECE, JUGOSLAVIA, ROUMANIA, TURKEY, and also the article WAR OF NATIONS.

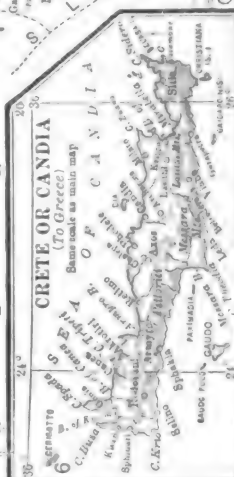
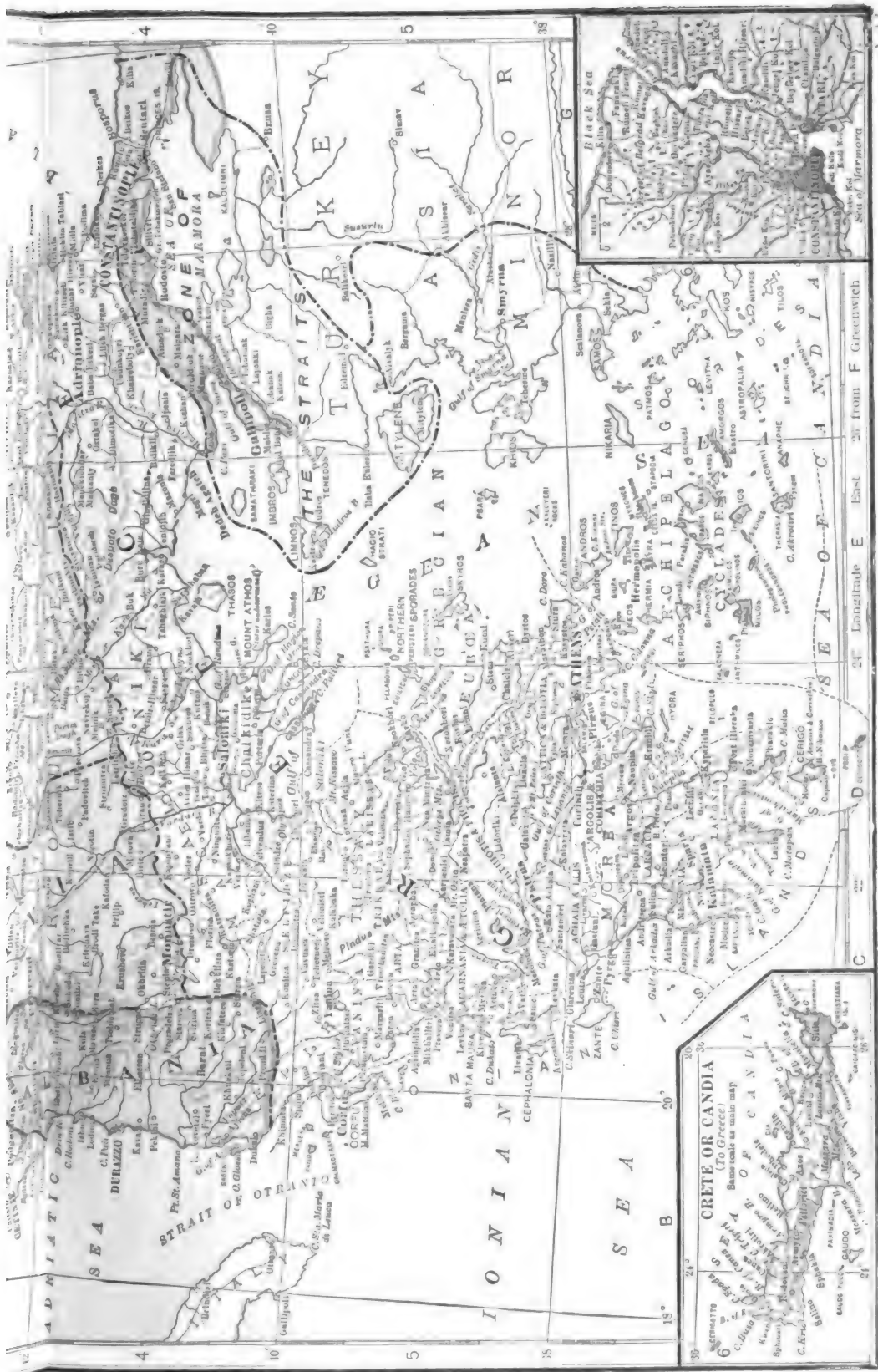
BALLARD, W. A. See NECROLOGY.

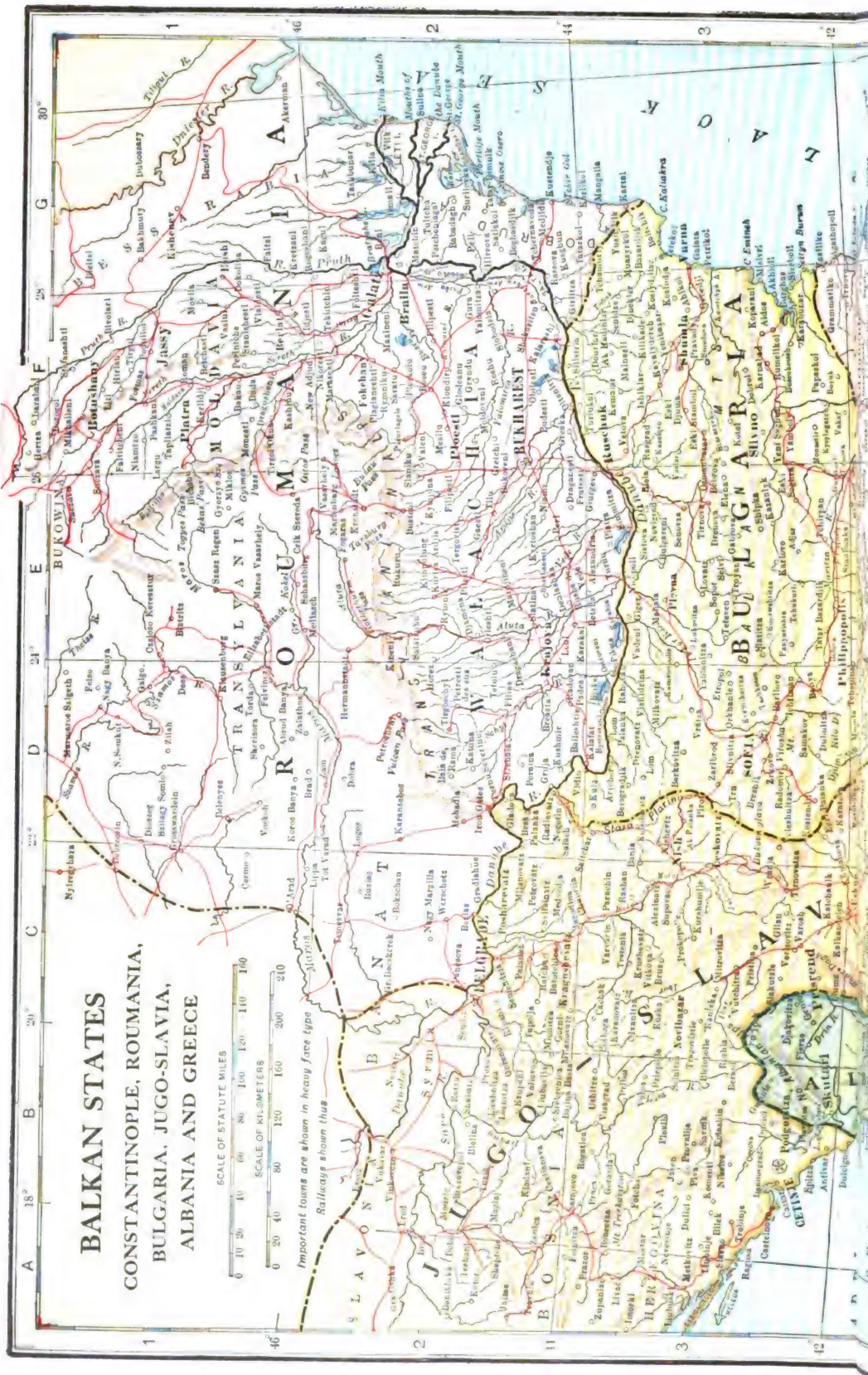
BALLIVIAN, MANUEL VICENTE. Bolivian scientist and civil official, died August 7. He was one of the best known and most highly esteemed public men of the country. He was born at Arequipa, Peru, June 16, 1848, of a Bolivian family temporarily staying there and was educated in Bolivia and in Europe. After serving in 1875 as secretary to the president he was appointed to serve on a commission of exploration in the northwestern part of the country. He was next placed in charge of the newly established Bureau of Statistics and Immigration. When the Department of Colonization and Agriculture was formed in 1904 he was appointed minister for the four-year term. Largely through his efforts as a collector the National Museum at La Paz was established. He was the chief of the Bolivian delegation to the Panama-Pacific Exposition at San Francisco. He was well known to American travelers for his hospitality. He published various works on exploration, geography, and the history of Bolivia.

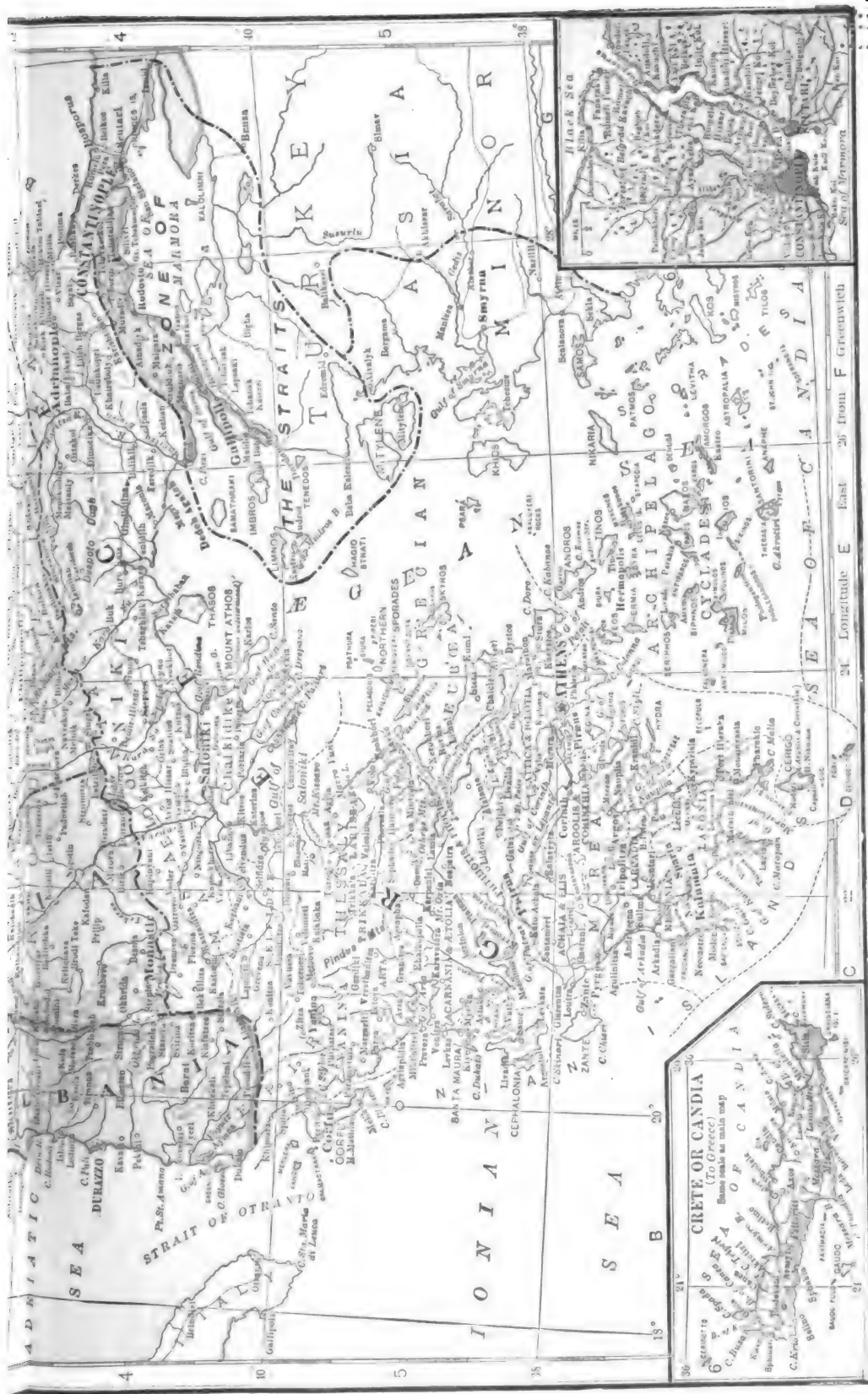
BALLOONS. See AERONAUTICS.

BALTIC PROVINCES. The name applied to the three former provinces of the Russian empire in the region of the Baltic sea: Courland, Livonia, and Esthonia, which during the war were under German control. The German evacuation was completed at the end of 1919. Meanwhile steps had been taken toward the organization of the new republic of Latvia and Esthonia out of parts of the region, the former including Courland and the southern part of Livonia, and the latter including Esthonia and the northern part of Livonia. By the end of 1920 the new states had been recognized by several of the Powers, but during that year and the following France and the United States were withholding recognition on the ground that they formed an integral part of territory which should belong to a properly constituted Russian state. In 1921 the new Baltic states were tending toward an alliance for the protection of their interests with Finland and Poland, in spite of the fact that the relations between Lithuania and Poland continued to offer difficulties. In 1920-21 many conferences were held for this purpose. Nothing resulted in 1920, but during the current year the conferences took on a more definite character. In the autumn the Lithuanian foreign minister invited the representatives of Esthonia and









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Latvia to a conference in Kovno and after this meeting a second conference was arranged at the instance of the Poles, to be held at Warsaw. The Finnish government was invited to send a representative. The question before them was that of a border-state league, comprising Esthonia, Latvia, Lithuania, Finland, and Poland. See ESTHONIA, LATVIA, LITHUANIA, and WAR OF THE NATIONS.

BALTIMORE, MD. See GARBAGE AND REFUSE DISPOSAL.

BANCROFT, LADY, born MARIE EFFIE WILTON. British actress, died at Folkestone, May 22. She was born in 1840 and after acting at professional theatres appeared at the Lyceum in 1856. For several years after that she confined herself to burlesque. In 1865 she started a small theatre on her own account and played in it with extraordinary success in the play called *Society*, which had a long run, and which marked the tendency toward a more realistic style of drama. She married Squire Bancroft in 1867, who afterwards became a baronet. She appeared in several other plays by Robertson and made a great success in an elaborate revival of *The School for Scandal*. She was one of the most admired comedienues of her time. She wrote a number of novels and a volume of stage reminiscences in collaboration with her husband.

BANK CLEARINGS. See FINANCIAL REVIEW.

BANKS AND BANKING. See FINANCIAL REVIEW.

BAPTISTS. This denomination is composed of three main groups: The Northern Convention, the Southern Convention, and the National Convention (colored). The report for 1921 shows a total membership of 7,943,331, as compared with 7,646,746 the year previous; 59,744 churches and 42,088 ordained ministers. In the Northern Convention there were 8409 churches, 8566 ordained ministers and 1,253,878 church members. The Southern branch had 29,551 churches, 15,551 ordained ministers, and an enrollment of 3,434,246. The National Negro Convention had 20,486 churches, 17,103 ministers, and a membership of 3,116,325. Sunday Schools in the Northern Convention numbered 7162 with an enrollment of 984,011; in the Southern Convention, 19,267 schools and 1,872,457 enrollment; and the National Negro Convention 17,476 schools with 947,116 enrollment. Statistics for the Canadian Branch showed 1302 churches, 868 ministers, 138,882 membership, and 1200 Sunday Schools with enrollment of 109,834. Foreign-speaking Baptist bodies include the Swedish, Danish, French, Italian, Finnish, American Magyar (Hungarian), Norwegian, Czecho-Slovak, Polish, Portuguese, Russian Baptist Conferences and Unions, and several unorganized groups of foreign-speaking Baptists. In addition there are several other smaller branches of the denomination, among which may be mentioned the following: General Six Principle Baptists, Seventh-Day Baptists, Free Will Baptists (Bullockites), Free Will Baptists (colored), General Baptists, Separate Baptists, Regular Baptists, United Baptists, Duck River and Kindred Associations (Baptist Churches of Christ), Primitive Baptists, Colored Primitive Baptists, and Two-Seed-in-the-Spirit Baptists. All of these have separate organizations and carry on extensive missionary work. The denomination proper carries on its missionary

work through special boards of the various branches. Total contributions to the church from all sources amounted to \$59,784,843 in 1921. The denomination maintained 13 theological seminaries, 9 training schools, 65 universities and colleges, 30 junior colleges, and 159 academies, institutes, and seminaries, 98 institutions for negroes, 2 Indian schools, and 8 educational institutions in Canada.

World statistics of the denomination given in the *British Baptist Handbook* for 1921 show there are in the Americas, including Mexico and the West Indies, 60,702 churches, 42,471 ministers, and a total membership of 8,020,714. European figures show 5231 churches, 3658 ministers, and 633,128 communicants; Asia, 2457 churches, 1793 ministers, and 252,892 communicants; Africa, 543 churches, 571 ministers, and 28,372 communicants; and Australasia, 393 churches, 319 ministers, and 30,888 communicants. The grand totals for the world are 69,326 churches, 48,812 ministers, and membership of 8,965,995.

BAPTISTS, FREE. This denomination was still in the process of full organic union with the Baptists of the North. Its General Conference had only a legal existence for the purpose of winding up property and other interests. It was not functioning in any ecclesiastical way.

BAR ASSOCIATION, AMERICAN. An association organized in 1878 for the purpose of advancing the science of jurisprudence, promoting the administration of justice and uniformity of legislation and of judicial decision throughout the nation, and upholding the honor of the legal profession. Its meeting in 1921 was held at Cincinnati, Ohio, August 31 to September 2, in joint session with the Ohio State Bar Association. Acting President Hampton L. Carson of Pennsylvania presided and in opening the session asked that the members rise and stand for a moment in silence as a mark of respect to the memory of the late President, William A. Blount. The secretary's report was read and showed there were 11,941 active and 18 honorary members at the date of the publication of the 1920 report. Since then there have been 306 deaths and resignations and 4446 new active members proposed and elected by the Executive Committee. The membership includes representatives of all States, of the District of Columbia and of Hawaii, Porto Rico, and the Philippines. There were 49 State bar associations then in existence, including Hawaii and the District of Columbia, also 900 local bar associations of which there is record. The president's address was delivered by the Hon. James M. Beck, Solicitor-General of the United States on "The Spirit of Lawlessness," in which he inquired into the causes of a revolt against authority. He furnished statistics to show an unprecedented growth in crimes, and referred to Pope Benedict's statement that five plagues were afflicting humanity: the present challenge to authority, an unprecedented hatred of man for man, an abnormal aversion to work, an excessive thirst for pleasure, and a gross materialism. He attributed much to the submergence of the individual into the group or class as a result of our modern mechanical civilization. At the second session, President Giddings of the Ohio State Bar Association, introduced Attorney-General Harry M. Daugherty, who spoke on the "Respect for Law." He mentioned some of the

problems confronting the Department of Justice and explained the principles on which they were decided. At the third session, the Hon. John W. Davis addressed the association on "Our Brethren Overseas," and Sir John A. Simon, former attorney-general of England on "Our Common Inheritance of Law." President Carson delivered a tribute to the memory of Hon. Edward Douglass White, former Chief Justice of the Supreme Court of the United States; he spoke of his life and notable work as chief justice. A tribute was also paid to Hon. William Alexander Blount, President of the Bar Association, who died at Baltimore, Md., at the age of 69 years. At the fourth session the reports of the various committees were heard. Speeches were made at the fifth session by Senator Charles S. Thomas of Colorado, on "Without a Friend," by Dr. R. Masujima, President of the International Bar Association of Tokyo, Japan, and by Mr. T. Yamamoto, a delegate from the Japan Bar Association. At this meeting resolutions were adopted condemning the conduct of Kenesaw M. Landis as derogatory to the dignity of the bench and undermining public confidence in the independence of the judiciary, in engaging in private employment while holding the position of a federal judge. Other addresses were made at this meeting and considerable discussion had on the subject of "Aviation" and the laws of aeronautics. Luther Z. Rosser of Georgia, spoke on the "Illegal Enforcement of Criminal Law," at the final session, as well as Marcus A. Kavanaugh of Illinois on the "Adjustment of Penalties," and Charles S. Whitman of New York on "Unenforceable Law."

The treasurer's report showed assets amounting to \$12,766.48. The *American Bar Association Journal* is the official organ of the association. Complete minutes of the yearly meetings are published in book form. The officers in 1921 were: President, William A. Blount, Pensacola, Fla.; secretary, W. Thomas Kemp, Baltimore, Md.; and treasurer, Frederick E. Wadhams, Albany. Headquarters are maintained at 901 Maryland Trust Bldg., Baltimore, Md.

BARBADOS. The most westerly of the Caribbean islands, forming a colony of Great Britain, and lying to the west of the Windward islands, with a length of 21 miles and a breadth of 14 miles; area, 166 square miles; population (1911) 171,893; estimated, Dec. 31, 1919, 200,368. Capital and chief city, Bridgetown, 16,648. Figures for revenue, expenditure, exports, and imports in pounds sterling for 1919-20 were as follows:

Revenue.....	420,136
Expenditure.....	351,851
Exports.....	3,305,382
Imports.....	3,893,458

The public debt in 1919-20 was £530,000. The executive power is vested in a governor with an executive council, and an executive committee; the legislative power, in a legislative council of nine members appointed by the King, and a house of assembly of 24 members elected by the people annually. Governor at the beginning of 1921 was Lieutenant Colonel Sir C. R. M. O'Brien.

BARCLAY, FLORENCE L. British novelist, died, March 10. She was born Dec. 2, 1862, and wrote *The Wheels of Time* (1908); *The Rosary*

(1909); *The Mistress of Shenstone* (1910); *The Following of the Star* (1911); *Through the Postern Gate* (1912); *The Upas Tree* (1912); *The Broken Halo* (1913); *The Wall of Partition* (1914); *My Heart's Right There* (1914); *In Hoc Vince* (1915); *The White Ladies of Worcester* (1917); *Returned Empty* (1920).

BARKER, WHARTON. Financier and author, died, April 8 at Philadelphia, Pa. He was born at Philadelphia, May 1, 1846, and during the Civil War aided in organizing a regiment of colored troops; after the war graduated at the University of Pennsylvania in 1866. He was a member of the banking firm of Barker Brothers and company, Philadelphia. In 1879 he was special financial agent for the United States in Russia and he was afterwards an adviser to the Russian government on the development of coal and iron resources. In 1887 he obtained from the Chinese government important railway and other concessions which were subsequently withdrawn and he was later in correspondence with the leaders of the revolutionary movement which afterwards resulted in establishing a republic in China. He published a weekly devoted to social-economic and political discussion in Pennsylvania. Down to 1896 he was a Republican, but turned Populist and was the Populist nominee for President in 1900. He was regarded as an authority on Far Eastern affairs and was widely informed in regard to all public questions, especially those of public finance.

BARLEY. The barley production in 1921 of 28 countries as reported to the International Institute of Agriculture, Rome, amounted to 937,488,000 bu., representing an increase of 2.9 per cent over the total production of the same countries in 1920. The yields of the principal producing countries were as follows: Spain 94,487,000 bu., Japan 89,900,000 bu., Germany 82,348,000 bu., Roumania 64,952,000 bu., Canada 64,253,000 bu., Poland 53,306,000 bu., Algeria 50,496,000 bu., Czechoslovakia 47,365,000 bu., England and Wales 44,242,000 bu., and France including Alsace-Lorraine 37,805,000 bu. A striking feature of the year was the large increase in yield over the preceding year secured in parts of northern Africa. The crop of Algeria was over 5 1/3 times and that of Tunis over 4 1/3 times the production of 1920 which was accounted for mainly by a larger yield per acre. The harvest of 1920-21 in South America gave a return of over 11,000,000 bu. in Argentina, the largest crop ever produced there, and of 5,385,000 bu. in Chile.

In many countries barley production has been much reduced since the beginning of the war in Europe. For instance, the average yield for the 5 years 1909-13 was over 150,000,000 bu. in Germany, about 50,000,000 in France and Alsace-Lorraine; 50,000,000 bu. in Great Britain and over 400,000,000 bu. in the former Russian Empire, which was the leading barley producing country of the world. With Russian agriculture disorganized and famine conditions prevailing in that country the United States has taken first rank in the production of this crop.

As estimated by the U. S. Department of Agriculture, the crop of 1921 amounted to 151,181,000 bu. from an area of 7,240,000 acres, the average yield per acre being 20.9 bu. In 1920 the yield was 189,332,000 bu., the area 7,600,000 acres and the average acre yield 24.9 bu. The

average farm value on Dec. 1, 1921, was 42.2 cts. per bu. and on this basis the total value of the crop was \$63,788,000. In 1920 when the corresponding bushel value was 71.3 cts. the total crop value amounted to \$135,083,000, and in 1919 with the bushel value at 120.6 cts. the total value reached \$178,080,000. The principal barley producing States in 1920 mentioned in the decreasing order of production were—California, South Dakota, Minnesota, North Dakota, Kansas, and Wisconsin. These six States produced approximately 70 per cent of the country's crop.

BARNARD, EDWARD CHESTER. Geologist and geographer, died at Washington, D. C., February 5. He was born in New York City, Nov. 13, 1863, and entered the United States Geological Survey in 1884 where he was topographer, 1884-1907, and geographer, 1907-15. He mapped large divisions of the southern States and the Far West and also a section of the State of New York. He was the chief topographer of the United States and Canadian survey, 1903-15, and surveyed the boundary line along the forty-ninth parallel from the Pacific coast to Rainy river through the Lake of the Woods. In April, 1915, he was appointed to the work of defining the boundary between the United States and Canada and between Alaska and Canada.

BARNARD COLLEGE. See COLUMBIA UNIVERSITY.

BAROTSELAND. See RHODESIA.

BARRON, SIR HARRY. British soldier, died in England in March. He was born August 11, 1847, served in the Royal Artillery and in 1904 attained the rank of major-general. He was then appointed to the command of Malta where he remained until 1909. In the latter year he was appointed governor of Tasmania, and in 1917 governor of Western Australia, holding the latter office till 1917.

BARTLETT-ASHMEAD. See BURDETT-COUTTS.

BARTO, DANIEL O. See NECROLOGY.

BARTON, JOHN KENNEDY. Naval officer, died at Philadelphia, December 23. He was born at Philadelphia, April 7, 1853, graduated at the Naval Academy in 1873 and by March 15, 1899, had risen to the rank of lieutenant-commander. He served on board the *Richmond* in the Spanish-American War. In 1907-08 he was head of the department of Steam Engineering at the League Island navy yard and became engineer in chief and Chief of the Bureau of Steam Engineering at the Navy Department, Washington in 1908.

BARUCHE, SIMON. Physician, died, June 3. He was born at Schwesens, Germany, July 29, 1840; educated first at the Royal Gymnasium at Posen, and later, after removing to the United States, at the Medical College of Virginia, where he graduated in 1862. He served during the Civil War with the Confederate troops in Lee's army, and was captured while in charge of the wounded on the battlefield of South Mountain, Maryland, and was again taken prisoner at Gettysburg. From 1865 to 1881 he practiced medicine in Camden, S. C., and after that in New York City where he became well known as a consulting physician in chronic diseases. To him is attributed the diagnosis of perforating appendicitis in the first case recorded in which a successful operation was performed. He was a leader in the movement for free municipal bath-

houses, and he was professor of hydrotherapy at the College of Physicians and Surgeons. He wrote works on the water treatment in modern medicine which had an extensive vogue in this country and in Europe. Free municipal baths were named in his honor in Chicago in 1910 and in New York in 1917.

BASEBALL. The year 1921 saw a great change for the better in the conduct of the professional game of baseball. The selection of Judge Kene-saw M. Landis of Chicago in 1920 as the High Commissioner of the sport bore fruit and the petty bickerings and squabbles, not to mention scandals, which had characterized the business side of the game in previous years came to an end. Judge Landis was forced to interfere on only a few occasions, notably when he banished certain players from organized ball and imposed fines and suspensions on three others for violation of the rules regarding "barnstorming" by members of championship teams. These three offending players were "Babe" Ruth, Bob Meusel, and Bill Piercy, all of the New York American League Club, or Yankees. Ruth and Meusel were fined \$3360 each and Piercy \$3280, these amounts equaling the sums each received as sharers in the world series "dividends." In addition the three men were suspended until May 22 of this year.

As in 1920 the outstanding star was "Babe" Ruth who shattered all records by knocking fifty-nine home runs during the season. John "Stuff" McInnis of the Boston Red Sox excelled defensively playing through 152 contests with only one error. The leading batter of 1921 was Rogers Hornsby of the St. Louis Cardinals who finished the season with a mark of .397. Carl Mays of the New York Yankees was the most successful pitcher in the American League, winning 27 games and losing 9. In the National League, the veteran twirler "Babe" Adams of the Pittsburg Pirates led the way with 14 victories and 5 defeats.

The struggle for the pennants in the two major leagues was the keenest in the history of the national game and resulted in the triumph of the two New York entries, the Giants and the Yankees. This marked the first time that two teams from the Metropolis had battled their way to the World Series and the contests between the two for the championship attracted a total of 268,876 spectators who paid \$900,233 in admissions, the largest amount this baseball classic has ever realized.

All the games were played at the Polo Grounds between October 5 and 13 and the Giants finally carried off the laurels despite the fact that they lost the first two games of the eight played. The statistics of the various contests follow:

First game—Yankees, 3 runs, 7 hits, no errors; Giants, no runs, 5 hits, no errors. Batteries, Mays and Schang; Douglas, Barnes, and Snyder.

Second game—Yankees, 3 runs, 3 hits, no errors; Giants, no runs, 2 hits, 3 errors. Batteries, Hoyt and Schang; Nehf and Smith.

Third game—Giants, 13 runs, 20 hits, no errors; Yankees, 5 runs, 8 hits, no errors. Batteries, Toney, Barnes, and Snyder; Shawkey, Quinn, Collins, Rogers, Schang, and De Vorme.

Fourth game—Giants, 4 runs, 9 hits, 1 error; Yankees, 2 runs, 7 hits, 1 error. Batteries, Douglas and Snyder; Mays and Schang.

Fifth game—Yankees, 3 runs, 6 hits, 1 error;

Giants, 1 run, 10 hits, 1 error. Batteries, Hoyt and Schang; Nehf and Smith.

Sixth game—Giants, 8 runs, 13 hits, no errors; Yankees, 5 runs, 7 hits, 2 errors. Batteries, Toney, Barnes, and Snyder; Harper, Shawkey, Piercy, and Schang.

Seventh game—Giants, 2 runs, 6 hits, no errors; Yankees, 8 hits, 1 run, 1 error. Batteries, Douglas and Snyder; Mays and Schang.

Eighth game—Giants, 1 run, 6 hits, no errors; Yankees, no runs, 4 hits, 1 error.

The final standing of the clubs in the National League was: New York won 94, lost 59; Pittsburgh won 90, lost 63; St. Louis won 87, lost 66; Boston won 79, lost 74; Brooklyn won 77, lost 75; Cincinnati won 70, lost 83; Chicago won 64, lost 89; Philadelphia won 51, lost 103.

The final standing of the clubs in the American League was: New York won 98, lost 55; Cleveland won 94, lost 60; St. Louis won 81, lost 73; Washington won 80, lost 73; Boston won 75, lost 79; Detroit won 71, lost 82; Chicago won 62, lost 92; Philadelphia won 53, lost 100.

The pennant winners in the more important minor leagues were: International League, Baltimore; American Association, Louisville; Pacific Coast League, Los Angeles; Southern Association, Memphis; Western League, Wichita; Western Association, Fort Smith; Texas League, Fort Worth; Eastern League, Pittsfield, Three-I League, Moline; South Atlantic League, Columbia.

Among the colleges Harvard, Georgetown, and Holy Cross were represented by strong nines. Yale and Princeton both lost their series with Harvard, while Georgetown and Holy Cross playing long schedules met with few defeats.

BASKETBALL. The Middle West furnished the champion basket-ball team of 1921 in the Kansas City A. C. five which triumphed in the annual tournament of the Amateur Athletic Union. The University of Pennsylvania for the fourth year in succession carried off the laurels in the Intercollegiate League, winning 10 games and losing 2. Dartmouth finished second with 7 victories and 3 defeats and Cornell third with a count of 6 and 4. The Western Intercollegiate Conference series resulted in a tie for first place between Wisconsin, Michigan, and Purdue, each of which won 8 games and lost 4. The year was marked by the increased interest shown in professional basketball, many of the larger cities supporting local leagues. The Canadian colleges also took up the sport on a fairly large scale, the University of Toronto capturing the championship title.

BASQUE LANGUAGE. See PHILOLOGY, MODERN.

BATES COLLEGE. A non-sectarian institution of higher education at Lewiston, Me.; founded in 1864. In the autumn of 1921 there were 556 students enrolled, of whom 319 were men and 237 women. The summer school enrollment was 126, and there were 36 members of the faculty, of whom 6 were added in the course of the year. The endowment in 1921 amounted to \$1,212,841 and the income to \$186,148. There were 48,701 volumes in the library. President, Clifton Daggett Gray.

BATTLE CRUISERS. See BATTLESHIPS AND OTHER WAR VESSELS.

BATTLESHIPS AND OTHER WAR VESSELS. BATTLESHIPS. The 4 battleships of the new

Japanese programme which were to be laid down in 1921-24 are said to be of 45,000 tons, to carry 8 18-inch guns, and to have a speed of 24 knots. These are the largest warships so far commenced though the new British battle cruisers (if built as originally designed) may be as large or larger. The American battleships of the *Massachusetts* class of 43,200 tons are the largest ones actually under construction. The Japanese battleship *Nagato*, 33,800 tons, is the largest so far completed. It carries the same battery as the U. S. S. *Maryland* of 32,600 tons, but is about 2 knots faster. New battleship design up to the present has been chiefly concerned with increased battery power, better protection against torpedoes, and a slight increase of speed—all involving large increases in dimensions. The result of the United States naval tests of attack by bombing planes has materially altered the situation. No special changes in battleship design are yet advocated, but the destructive effect of heavy aircraft bombs when dropped in the water near the hull of a vessel is receiving much careful attention. Whether the design of battleships will be modified or not, there is no doubt that greater attention will be paid to anti-aircraft guns and devices, and that pursuit planes for attacking bombers will form a more important part of fleet equipment. If the American plans for the limitation of naval armaments are approved, all of the newest battleships, American and Japanese, will be scrapped; and modification of design will await a future day. See NAVAL PROGRESS: *Aircraft Attack on Surface Vessels*.

BATTLE CRUISERS. The four new British battle cruisers that were contracted for in 1921 are said to be improved *Hoods*, but no specific details have been published. The Japanese battle cruisers of the *Amagi* type have practically the same tonnage, speed, and battery as the American vessels of the *Lexington* class. The Japanese battle cruisers of the new programme were not to be laid down before 1922 or 1923. No details have been published except that they will carry 18-inch guns.

CRUISERS. The new light cruisers of the U. S. S. *Omaha* class (10 in number) are of 7500 tons, 33¼ knots speed, and carry 12 6-inch and 2 anti-aircraft guns. The larger of the Japanese cruisers now under construction are of 5770 tons, 33 knots speed and carry 7 5.5-inch guns: 2 cruisers of about 7100 tons are to be laid down in 1922 but the exact dimensions, speed, and armament have not been disclosed. The British cruisers of the *Raleigh* class, all launched, some completed, are of 9750 tons, 30 knots speed, and carry 7 7.5-inch and 12 3-inch (of which 4 are anti-aircraft) guns. The *Dispatch* class, also nearing completion, are of 4650 tons, 29 knots speed, and carry 7 6-inch and 2 3-inch anti-aircraft guns. The designs of the new French cruisers of the *Bouvet* class are probably not completed; they are to be of about 8000 tons, carry 7.5-inch guns, and have a speed of 35 knots. In view of the results of the recent American bombing tests an increase in the anti-aircraft battery of all these ships is probable.

FLOTILLA LEADERS. These vessels are very large destroyers designed to act as flag boats of destroyer flotillas. The latest types of which the details have been published are given in the accompanying table.

	British	German	Japanese	Italian	French
Launched...1918	1917	1921	1920	bldg.	
Tons....1740	2400	1900	2200	2000	
Speed, kts .36	35	38	34	....	
Guns.....54.7 in.	45.9 in.	55 in.	84.7 in.	....	
Tubes....4 21 in.	6 21 in.	4 23.6 in.	6 18 in.	....	

The United States has no flotilla leaders at present and none has yet been laid down.

DESTROYERS. Nothing particularly new in regard to destroyers has developed during the year. The latest types are of 800 to 1400 tons with speeds of 35 to 38 knots.

SUBMARINES. The production of submarines during the Great War was so rapid—the exigency so urgent—that many of the types brought out were of little value and will have to be rebuilt or scrapped. In most navies there is to-day a combing out of the failures and a study of the successful types with a view to improvement. The British government is urging the barring of submarines in future warfare but it is doubtful if the other Powers will agree to this: it is also doubtful if such an agreement will hold. In the Second Hague Conference the Germans agreed to the rules for land warfare which were developed during the American Civil War. But when the war began the conventions of the Hague Conference became “scrap of paper” and the Germans paid no attention whatever to their agreements. The Allies threatened punishment but have really done nothing and some future warring nation, remembering this post-war indifference, will feel that they can safely follow the German footsteps. As of land war, so of submarines. Future wars are likely to perpetuate the horrors of the last because of our failure to punish. A submarine legitimately used is certainly no more objectionable than a torpedo boat or torpedo. And any attempt to bar the construction or use would in war receive no more attention by a German, Turk, Bolshevik Russian, or similar faithless brute than the Germans paid to their solemn agreements or to the dictates of humanity or decency. If faith-keeping nations are debarred from building, the faithless ones would be the first to build them after war broke out.

At present there seems to be a sort of pause in submarine development. This is due to many causes, but mainly to the lack of urge. Few nations are regarding war as imminent or even probable for many years to come, so that all feel that there is plenty of time to study submarine design from the standpoint of what has been accomplished—successes and failures.

Two types seem most in favor at present—one of about 900 tons on the surface and 1200 tons submerged and one of about 1600 tons on the surface and 2000 tons submerged. The former is designed to operate independently, the latter to accompany the fleet. Much attention is being given to the battery. On all the larger submarines guns of 5-inch or 6-inch calibre are mounted. The British *M* Class each carry a 12-inch gun. Germany is not allowed to build any submarines at present but the Germans are studying submarine design. Professor Flam of the superior technical school at Charlottenburg has developed the following designs:

Type 1. 1443 tons: speed on the surface, 17.5 knots; inclined armor on exposed top, 1.5 inches;

weight of armor, 134 tons; 2 4-inch guns in turrets, one near each end; a torpedo launching tube on deck with wide arc of train; submerged tubes at bow and stern.

Type 2. 4870 tons; speed on surface, 25 knots; armor, 2 inches; 2 8-inch guns; 6 or 8 tubes.

Type 3. 8400 to 9000 tons; speed, 28 knots; hull armor, 2.5 inches; 4 8-inch or 9.4-inch guns in turrets with 6-inch armor; 8 torpedo tubes.

The value of submarines as mine-layers is fully appreciated everywhere. A recent French boat of this type, launched in 1921, will have a surface displacement of 875 tons, submerged 1230. See NAVAL PROGRESS.

BAUXITE. According to figures collected by the United States Geological Survey, 321,308 long tons of bauxite in the United States in 1920 valued at \$3,247,345, was produced as compared with 376,566 long tons, valued at \$2,201,747 in 1919. The mines in Saline and Pulaski counties, Ark., produced 481,279 long tons, or 92 per cent of the total output in 1920. The production from these mines in 1919 was 333,490 long tons. Georgia ranked second, Alabama third, and Tennessee fourth in production, and the combined output of these three States was 40,029 long tons in 1920, as compared with 43,076 long tons in 1919. In Georgia the bauxite producing counties, arranged in order of quantity produced, were Sumter, Wilkinson, Floyd, Randolph, Meriwether, Macon, and Bartow. A number of the mines in Bartow and Wilkinson counties that were worked in former years have been abandoned, but new deposits in Randolph county were opened in 1920. The bauxite imported 1920, most of it from South America and France, amounted to 42,895 long tons, as compared with 6082 long tons in 1919.

The production of bauxite in the United States for 1921 was estimated by the United States Geological Survey, at approximately 130,000 long tons as compared with 521,308 long tons in 1920, a decrease of 391,308 tons. This great decrease in the production of bauxite was largely the result of the curtailed demand for aluminum, particularly aluminum used in the automobile industry, though the curtailed consumption of chemicals containing alumina lessened the output of some of the mines, particularly in the Georgia-Alabama field.

BAVARIA. Formerly a constituent kingdom of the German empire but after November, 1918, a free republican state in the new German government. Area 30,562 square miles; population (1910) 6,962,109; estimated (1919) 7,150,146. The following table taken from the *Statesman's Year Book* of 1921 shows area and population by divisions.

Regierungsbezirke	Area sq. miles	Population	
		1910	1919
Upper Bavaria (Oberbayern)....	6686	1,532,065	1,584,885
Lower Bavaria (Niederbayern)....	4298	724,331	750,663
Palatinate (Pheinpfalz).....	2372	937,085	957,348
Upper Palatinate (Oberpfalz)....	3862	600,284	612,021
Upper Franconia (Oberfranken)....	2798	661,862	657,473
Middle Franconia (Mittelfranken)...	3036	930,868	949,524
Lower Franconia (Unterfranken)...	3360	710,943	737,135
Suabia (Schwaben).....	3934	789,853	836,753
Coburg.....	216	74,818	74,344
Total.....	30,562	6,962,109	7,150,146

The free city of Coburg decided by the vote of a large majority, Nov. 30, 1919, to join with Bavaria and the Bavarian Diet ratified the union by a unanimous vote, March 11, 1920. The chief cities of Bavaria with their populations in 1919 are: Munich (the capital), 630,724; Nuremberg, 352,679; Augsburg, 154,567; Würzburg, 86,581. According to the census of 1910, Roman Catholics numbered 4,862,233; Protestants, 1,942,385; Jews, 55,065. Education is compulsory between the ages of 6 and 16. In 1913-14, the latest figures available, there were 7534 elementary schools with 19,564 teachers and 1,091,884 pupils. In 1919 the chief crops with their area and yield in metric tons were as follows: Wheat, 659,982 acres and 266,822 metric tons; rye, 1,135,622 and 441,130; oats, 1,076,082 and 581,142; potatoes, 690,347 and 1,619,141; vines, 43,782 and 10,014,290 gallons; hops, 18,405 and 450 metric tons. Live stock on September 1, 1919, were: Horses, 348,634; cattle, 3,684,626; sheep, 712,628; pigs, 1,430,797; goats, 442,453. The budget is voted for two years. For the year 1920 it balanced at 1,954,238,368 marks, and the extraordinary budget balanced at 809,704,315.

Down to Nov. 11, 1918, the executive power was in the hands of the Wittelsbach dynasty which had ruled for over one hundred years, and the legislative power was in a parliament consisting of an Upper House whose members were various dignitaries of the state and life members appointed by the crown, and a Lower House whose members were elected by direct vote. The king down to November, 1918, was Ludwig III. On Nov. 22, 1918, the dynasty was deposed and Bavaria was proclaimed a republic. A cabinet was thereupon formed under the leadership of Kurt Eisner, a Socialist, who was assassinated in February, 1918. After this the moderate element tended to gain the upper hand and finally power passed over to the more reactionary group. (See preceding YEAR BOOKS.) Meanwhile the constituent assembly had been in session and on August 14, 1919, the new constitution was adopted. According to this instrument the supreme power lies with the people. The executive power was vested in a ministry or cabinet taken as a whole and the legislative power in a diet, consisting of one chamber elected for four years on the basis of one member for every 4000 inhabitants. Down to 1921 the members numbered 183. The ministry constituted, March 7, 1920, was as follows:

Premier and Minister of Foreign Affairs, Dr. von Kahr; Education, Dr. Matt; Commerce and Industry, Herr Hamm; Social Welfare, Herr Oswald; Agriculture, Herr Wutzelhofer; Interior, the Premier; Finance, Dr. Krausneck; Justice, Dr. Roth. See GERMANY.

BAVARIA, LUDWIG, KING OF. Ludwig, Count Palatine of the Rhine, Duke of Bavaria, Franconia, and Suabia, King of Bavaria after Nov. 5, 1913, died on his estate of Sarval, October 18. He was born at Munich, Jan. 7, 1845, the son of Prince Luitpold, who was regent after June, 1886, during the insanity of King Otto. Prince Ludwig became regent on the death of his father in 1912 and Parliament having established the permanence of the King's madness, he became king Nov. 5, 1913, under the title of Ludwig III. He was extremely popular and was often seen on the

streets of the capital among the people. In views he was liberal and influenced the Bavarian Chamber in 1906 to adopt universal suffrage. In his youth he served with the rank of captain in the war of 1866 against Prussia and was wounded. He married Maria Theresa of Austria, daughter of the Archduke Francis of Este, by whom he had twelve children, the eldest son being Prince Rupprecht, Crown Prince of Bavaria, born in 1869, who commanded a group of the German armies during the war. Ludwig III was the last reigning prince of the House of Wittelsbach which had governed since 1186.

BAXTER, JAMES PHINNEY. Historian, died at Portland, Me., May 8. He was born at Gorham, Me. March 23, 1831, and was mayor of Portland for six terms, 1893-97, and 1904-05. He organized the Associated Charities and was the first president and he built and donated to Portland its public library. He was the president of a savings bank. His writings mainly dealt with the colonial history of America and included: *The British Invasion from the North* (1887); *Sir Ferdinando Gorges and his Province of Maine* (1890); *The Pioneers of New France and New England* (1894); *The Voyages of Jacques Cartier* (1906); *The Greatest of Literary Problems* (1915); and he edited twenty volumes of a documentary history of Maine.

BAYLOR UNIVERSITY. An institution of the higher learning at Waco, Texas; founded in 1845. The enrollment for the fall of 1921 was 1098 and for the summer session and normal school, 705. The faculty numbered 61. There were 40,604 volumes in the library. President, Samuel Palmer Brooks, LL.D.

BEAUX-ARTS INSTITUTE OF DESIGN. A society organized in 1916 to take over the educational work formerly done by the Society of Beaux-Arts Architects, after the plan of the Ecole des Beaux Arts of Paris. The director's report for 1921 showed that notwithstanding adverse conditions affecting the architects' profession and the decorative arts in general, there was a 27 per cent increase in enrollment over the previous year. The total of 1336 is distributed among the four departments as follows: Architecture, 900; Sculpture and Life Drawing, 320; Mural Painting, 57; and Interior Decoration, 59. The 14th Paris Prize of \$1200 given by the Society of Beaux-Arts Architects through the Institute for 2½ years' study in architecture at the Ecole des Beaux Arts in Paris, was awarded to Lloyd Morgan. There were 119 competitors. Especial success was had in the Department of Sculpture, one of the students winning the Roman Academy Prize. It is stated also that the quality of the work of the Department of Interior Decoration, established but four years ago, is remarkable. The officers for 1921 are Lloyd Warren, director; Thomas Hastings, chairman of the Board of Trustees; and Henry T. Sedgwick, secretary. Headquarters are 126 East 75th Street, New York.

BECKWITH, CHARLES D. See NECROLOGY.

BEEF. See LIVE STOCK.

BELGIAN CONGO. See CONGO, BELGIAN.

BELGIAN RELIEF. See RELIEF FOR WAR VICTIMS.

BELGIUM. A European kingdom lying between France and the Netherlands; held by the Germans throughout the war but restored to

independence in the autumn of 1918; Capital, Brussels.

AREA, POPULATION, ETC. The total area is 11,373 square miles; the population, Dec. 31, 1910, was 7,423,784; estimated Dec. 31, 1919, 7,577,027, showing a density per square mile in 1910 of 652. Of the nine provinces the four having the greatest population are in their order; Brabant, Hainaut, East Flanders, Antwerp. Brussels, including suburbs, had a population on Dec. 31, 1919, of 685,268. The two next largest cities with their populations on that date are: Antwerp, 322,857; Liège, 166,697; Ghent, 165,655. In 1910 those who spoke Flemish only numbered 3,220,662; French only, 2,833,344; French and Flemish, 871,288; German only, 31,415; all three languages, 52,547. The majority of the inhabitants are Roman Catholics but no recent figures are available. There are four universities. The primary schools Dec. 31, 1920, numbered 7959 with 960,819 pupils; the infant schools 3366 with 205,418 pupils. The middle class schools numbered 97 for boys with 25,903 pupils, and 48 for girls with 13,638 pupils. Higher education was provided for by 23 Atheneums and colleges with 7962 pupils; by municipal and private colleges, and by the four following universities: Brussels, with 1644 students in 1919-20; Ghent, 1006; Liège, 2656; Louvain, 2783. There are besides, various commercial, agricultural and art institutions and special technical schools.

PRODUCTION. In 1920 the area under cultivation was placed at 1,340,415 hectares. The following table from the *Statesman's Year Book* of 1921 shows acreage and production of principal crops in 1913 and 1919 respectively.

Crop	Acreage		Produce in cwts.	
	1913	1919	1913	1919
Wheat.....	398,735	346,685	8,039,010	5,665,657
Barley.....	85,062	79,315	1,836,166	1,479,643
Oats.....	679,235	567,573	13,921,890	7,825,334
Rye.....	648,727	529,513	11,411,898	7,259,856
Potatoes.....	379,677	392,633	3,200,932 *	2,828,544 *
Beet (sugar).....	131,047	107,235	1,391,917 *	1,094,937 *
Tobacco.....	10,005	17,278	178,738	313,293

* Tons.

Livestock, Dec. 31, 1920, were as follows: Horses, 198,154; cattle, 1,292,271; pigs, 545,774; sheep, 126,202; poultry, 3,839,853. The minerals include iron ore, coal, and coke. In 1920 the coal output was 22,413,530 metric tons and the coke was 1,800,000 metric tons. The persons engaged in the production of coal, coke, and briquettes numbered 167,924.

ECONOMIC CONDITIONS. There was much fear expressed in 1921 of the growing competition

with Germany, German exports having developed in the course of the year to a remarkable degree owing to the fall of German exchange, which made German manual labor much cheaper than that of Belgium, thus reducing in comparison the cost of production. German exports of raw materials had decreased owing to the demands for them in German industries, falling from 94,000,000 marks during the first six months of 1920 to 52,000,000 during the corresponding period of 1921 and from 188,000 tons to 112,000 tons. The above figures do not include the German exports of coal, amounting to 304,000,000 marks, an increase over 1920. German exports of manufactured products in the first six months of 1921 came to 373,816,000 francs, as against 193,340,000 francs in the first six months of 1920, or 184,000 tons or against 110,000 tons. These products included machinery, railway cars, and chemical products. Certain branches of the Belgian hardware industry were the chief sufferers. Important glass works in Belgium had to close their doors, as Germany was exporting glass products to the value of 7,667,000 francs in 1921, as against 2,757,000 francs in 1920. Owing to defects in the trade-mark law Belgium was unable to prevent German counterfeits. The trouble was due in part to the lack of an adequate tariff system preventing her taking any special measures against German competition. The condition of Belgium reacted unfavorably upon the French market.

COMMERCE. According to statistics issued by the Minister of Finance it appeared that the commerce of Belgium in 1920 amounted to 22,495,041 metric tons (1 metric ton = 2204.6 pounds), of which 11,946,448 tons were imports and 10,548,593 tons were exports. This commerce was valued at 19,879,549,000 francs (\$1,443,161,451) of which 11,171,467 francs (\$810,995,789) were imports and 8,708,082,000 francs (\$632,165,670) exports, the balance of trade against the country being 2,463,385,000 (\$178,830,127). The imports for 1920 exceeded those of 1919 by 5,948,420,000 francs and the exports by 6,419,246,000 francs. Belgium's principal foreign commerce is with Argentina, Belgian Kongo, France, Germany, Great Britain, Netherlands, and the United States. The quantity and value of the trade with foreign countries in 1919 and 1920 are shown in the following table. [In the tables in this report the figures for 1919 are final, but those for 1920 are subject to revision. Quantities are given in kilos (1 kilo = 2.2046 pounds) and values in Belgian francs, the average exchange value of which was 9 to the dollar in 1919 and 13,775 to the dollar in 1920.]

Countries	1919		1920	
	Kilos	Francs	Kilos	Francs
IMPORTS				
Argentina.....	170,756,864	211,210,439	494,665,066	630,510,348
Belgian Kongo.....	14,673,719	47,786,146	14,951,581	96,474,070
France.....	722,859,048	934,151,306	2,632,180,540	2,199,987,163
Germany.....	164,354,131	95,947,234	2,131,035,262	903,296,652
Great Britain.....	886,011,221	1,407,242,486	1,352,500,486	1,923,248,958
Italy.....	41,443,093	48,988,619	111,014,761	181,174,709
Netherlands.....	506,625,296	381,290,212	890,261,245	703,930,930
Switzerland.....	10,425,603	73,306,986	49,419,792	140,674,767
United States.....	721,007,226	1,085,716,414	1,179,475,177	1,941,087,656
All other countries.....	1,494,493,022	937,407,315	3,090,944,410	2,451,082,221
Total.....	4,732,649,123	5,223,047,157	11,946,448,320	11,171,467,474

Countries	1919		1920	
	Kilos	France	Kilos	France
EXPORTS				
Argentina.....	9,611,920	9,690,316	68,534,388	137,901,024
Belgian Kongo.....	23,687,999	7,477,311	19,313,481	39,776,077
France.....	2,738,607,537	588,475,726	4,534,739,269	2,508,661,174
Germany.....	290,241,314	666,644,440	566,318,230	1,281,780,242
Great Britain.....	272,923,757	236,284,200	897,927,544	1,350,849,143
Italy.....	89,648,087	26,366,912	164,303,422	154,617,924
Netherlands.....	2,256,713,145	446,513,356	1,832,377,069	1,026,157,315
Switzerland.....	339,708,640	81,303,833	245,359,501	353,264,081
United States.....	273,379,258	49,907,858	413,483,694	304,641,484
All other countries.....	598,985,194	176,172,125	1,806,166,230	1,550,433,071
Total.....	6,893,406,821	2,288,836,077	10,548,592,818	8,708,081,535

FINANCE. The budget for 1921 showed a deficit of 4,581,689,085 francs as against 5,589,696,747 francs for 1920. The figures in detail were as follows:

Items	France
RECEIPTS	
Ordinary:	
Direct taxes.....	464,530,000
Customs and excises.....	374,424,000
Registration tax.....	304,150,000
Tolls.....	3,070,000
Railroads.....	1,050,000,000
Posts and telegraphs.....	153,228,850
Capital and revenue.....	78,221,648
Reimbursements.....	81,102,724
Total.....	2,508,727,222
Exceptional:	
Tax on war profits.....	75,000,000
Tax on exceptional profits.....	125,000,000
Sale of war booty.....	20,000,000
Sale of army stocks.....	500,000
Indemnity for occupation.....	90,000,000
German deliveries.....	300,000,000
Total.....	610,500,000
Total, ordinary and exceptional.....	3,119,227,222
Extraordinary:	
Alienation of real estate.....	1,500,000
Liquidation of Government stocks.....	25,000,000
Sale of former fortified areas.....	500,000
Sale of provisions.....	1,665,074,000
Total.....	1,692,074,000
Reparations receipts:	
Sale of recovered objects.....	25,000,000
Office des Regions Devastées.....	10,000,000
Miscellaneous.....	752,000
Balance of German deliveries.....	261,000,000
Total.....	296,752,000
Grand total receipts.....	5,108,053,222
EXPENDITURES	
Ordinary and exceptional:	
Public debt.....	927,554,336
Salaries and civil list.....	11,299,172
Ministries.....	2,863,627,184
Total.....	3,802,480,692
Extraordinary:	
Public debt.....	160,555,000
Ministries.....	2,967,140,765
Total.....	3,127,695,765
Expenses recoverable under Treaty of Versailles:	
Public debt.....	446,524,000
Ministries.....	2,313,041,850
Total.....	2,759,565,850
Grand total expenditures.....	9,689,742,307

The increase in the cost of administration was largely due to laws of 1920, providing for additional salaries, pensions, etc. The railway and postal service had improved and promised to reduce the deficit to one-half of that of the previous year. One of the heaviest extraordinary charges was that of the ministry of industry, labor, and provisioning, required for the purchase of foreign foodstuffs. Normal taxation showed an increasing yield, especially the income tax. The increase in custom duty went into effect in April, 1921. Throughout the year the tax on exceptional profits was continued. The debt during 1921 was increased by treasury notes authorized up to 2,000,500,000 francs and by a loan of \$30,000,000 concluded early in the year with American bankers. The internal consolidated debt at the beginning of June was 5,372,529,789 francs, and the external consolidated debt 295,291,377; the internal floating debt, 10,388,142,000, and the external floating debt together with advances from the Allies, etc., 8,171,672,221 francs. The total debt, consolidated and floating, was, therefore: 24,227,635,387. Including the uncovered deficit in the budget the total obligations of the country were thus about 29,000,000,000 francs which was practically equal to the total movable fortune of the country. It was estimated at about 34,000,000,000 francs at the close of the year. The pre-war debt of Belgium was 5,000,000,000 francs.

The new 1 per cent sales tax which went into effect on November 14 was expected to prove an important source of revenue. The yield of indirect taxes and other items in the first section of the ordinary budget for the first seven months of 1921 amounted to 1,149,712,304 francs, or 42,737,075 francs below the budget estimates, but 227,064,671 francs in excess of the yield for the same period of 1920.

RAILWAYS. The total length of railways in 1919 was 400,649 miles of which 2759 were state lines: 184 miles, private lines; and 1706 miles, light railway.

GOVERNMENT. The executive power is in the King who acts through a responsible ministry and the legislative in the King, the Senate and the Chamber of Representatives. The King in 1921 was Albert, born April 8, 1875, and married, Oct. 2, 1900, to Princess Elizabeth of Bavaria. He succeeded to the throne Dec. 17, 1909, and his oldest male child is Prince Leopold, Duke of Brabant, born, Nov. 3, 1901. At the beginning of 1921 the ministry was constituted as follows:

Prime Minister and Minister of Interior, Henry Carton de Wiart; Finance, Georges Theunis; Economic Affairs, Aloys Van de Vyvere;

Foreign Affairs, Henri Jaspar; Education, Jules Destrée; Agriculture, Baron A. Ruzette; National Defense, Albert Devèze; Justice, Emile Vandervelde; Colonies, Louis Franck; Industry Food Supply, and Labour, Joseph Wauters; Railways, Marine, Posts and Telegraphs, Xavier Neujean; Public Works, Edouard Anseele.

HISTORY

THE LANGUAGE QUESTION. The sharp division between the Walloons and the Flemings of the last few years was attributed in part to the German policy during the occupation, for the Germans had done their best to persuade the latter that they belonged to the German race and ought to separate from their Latin associates. For many years the question of the Flemish university at Ghent had been a point of dissension. The question when revived in 1921 showed that the gap had widened between the two races. Violent attacks were made during 1921 as in previous years on Cardinal Mercier. Other instances of intolerance on the part of the Flamings were quoted by their adversaries but it was generally admitted that they were making progress. The Chamber of Deputies carried the bill for the use of the two languages in the administration, to go into effect Jan. 1, 1922. This measure, however, was the object of so much hostility from the parliamentary minority and from the Walloons outside Parliament that the application of it was believed to be impossible, even if it were attempted. The new measure was based on the principle of territoriality, the country thenceforth to comprise two linguistic regions, Flemish and Walloon. The Flemish and French tongues were placed on the same footing, although the friends of the Walloons pointed out that French was in far more general use and of far greater practical advantage than Flemish and that the use of two languages until now did not exist in the Walloon region. The law required henceforth that the officials of the Walloon region must speak both languages, which in many cases would oblige them to acquire French from the beginning. There was talk, furthermore, of extending these advantages for Flemish as soon as the Flemish party succeeded in getting complete possession of the government. French sympathizers with the Walloon element considered this victory for the Flamings the more deplorable as tending to advance the interests of Germany. Its opponents in Belgium also made much of this argument, saying that their adversaries were trying to Germanize the country. Three members of the de Wiart Cabinet voted against the bill. For the first time in the history of the Belgium Parliament, Walloons and Flemings voted against each other in solid blocs. This racial division was regarded with some anxiety. The Chamber had the bill concerning the administrative use of the two national languages under consideration in August. The Senate under pressure of certain political elements had framed an alternative measure the year before which aimed at a compromise between the spirit of separatism and the principle of bilingualism. Common to both measures was a division of the country into two linguistic regions, but the Senate measure contained provisions that were believed to prejudice the rights of the

French-speaking element. It required officials of the higher ranks in the central administration to have a thorough knowledge of both languages and it introduced bilingualism in the Walloon regions where French had hitherto been exclusively employed. The Chamber attacked these provisions. A modification of the Senate proposals might have been possible but the Flamings would not accept it. In November, 1920, the de Wiart Cabinet in order to secure the support of certain Flemish elements of the Right had accepted the bill voted by the Chamber, which met all the requirements of the Flamings. The latter, however, desired more than was granted by this law. A series of amendments were offered by a special committee in the Chamber, of which the Flamings controlled the majority, but there was one point they insisted upon, namely, the use of the two languages in the Walloon regions. This point then became the main issue of the discussion.

POLITICAL PARTIES. The elections were due at the end of October. The Belgian parties, it will be remembered, consist mainly of the three great groups, Catholic, Liberal, and Socialist. The party system dating from before the war did not seem to respond to the actual needs of the hour, and there was a tendency toward disintegration in each party and toward a new grouping. The spirit of Parliament was in general democratic, but while the great majority were in agreement in this respect, there was much division on the specific programmes. The Catholic Right contained Christian Democrats, Agrarians, Moderates, and Conservatives. This group was in a minority in the Chamber but in a majority in the Senate. The subdivisions of this group were, however, hostile to one another and they were no longer held together even by the policies that united them before the war. The Socialist Left though apparently a solid bloc, was also subdivided. Thus, the majority of the Socialist Deputies favored a nationalist policy in foreign affairs, whereas a small group of Flemish Socialists from Antwerp and Brussels were internationalists. Moreover, while in general the Socialists of the Right and Left were in accord on socialist principles, the Communists had broken away from them. Finally the Liberal Left was divided into Moderates and Radicals, the former inclining toward the Conservative Right and the latter toward the Socialists. While it seemed natural that in respect to social policy Christian Democrats, Liberal Radicals, and Moderate Socialists should come to some understanding, there were other issues which rendered this difficult, if not impossible, as for example, the question of military service, which was one of the main points at issue in the coming election. The Socialists demanded six months' military service; the Christian Democrats, from six months to nine months; the Liberals, one year, and there seemed no chance of agreement among them. Then there was the linguistic difference (See above, *Language Question*). The Catholic Right was under the control of the Flamings, who made up two-thirds of their number, or 46 out of 72. They were supported in Parliament by a small group of Socialist deputies from Antwerp and a few Liberals; and in general all the Flemings, whatever their political party, were in accord in opposing any alliance with France and in favoring an understanding with

Holland. To this national grouping was opposed the Walloon deputies of all parties, including about fifty Socialists out of seventy-five, most of the Liberal deputies, and fifteen of the Catholic deputies. These elements tended toward a pro-French policy but they were outnumbered by the Flemish groups. Finally there were some deputies of both races that aimed at national unity and therefore favored concessions to the Flemish element at the expense of the Walloon. The language question was especially important as it reacted upon various political motives. Thus, all the Socialists were on the side of the Flemish element for political reasons without regard to the language question because the Flemings of the Right demanded the recruiting of the army by regions, which would divide it into Walloon and Flemish regiments respectively. The Socialists favored this because it would create a deep line of cleavage in the Belgian people. This was the somewhat complicated situation on the eve of the campaign. There was a tendency before the election to divide parties into two *blocs*, one composed of Flemish extremists and the other of Moderates. The former contained the internationalist element of the Socialist party, the latter contained the majority of the Walloon Socialists.

ELECTIONS. At the time of the elections two main questions were before the public. The first was the reduction in the term of military service. The Socialists demanded a service of only six months for the national defense and the elections indicated a rejection of that demand, but, at the same time the Flamings among the Catholics, themselves, favored the six months service and also recruiting by regions. The other was the language question. The 42 Flamingant Catholic deputies in the Chamber persisted in their programme of reform which was condemned by their opponents as tending to divide the country and check the spread of French culture in Belgium. Their international policy was also anti-French tending toward friendship with the Netherlands and Great Britain rather than with France. In respect to the language question the Flamings among the Socialists lined up with the Catholic Flamings. The Liberal programme in the coming elections contained as its chief features the following: Revision of the law for the use of both languages in the public services; economic understanding with France; defense of Belgian industries against German penetration; free passage of the Escaut; and solution of the Limburg question. The Minister of National Defense, M. Devèze, a Liberal, declared against military service for six months and the division of the army into Walloon and Flemish regiments; asserted the necessity of defending the social legislation, but objected to any coalition with the Flamings and the Socialists.

The elections were held, November 20. The distributing seats among the parliamentary groups was as follows: In the Chamber, the members of the Catholic Right numbered 82, elected from the different groups; the Socialists, 66; and the Liberals, 33. The Flamings (Activists) numbered 4. In the former chamber there were: Catholics, 73; Socialists, 70; Liberals, 34; Activist-Flamings, 15; and Dissenters, 4. The new Senate was composed of: 42 Catholics; 32 Socialists; and 18 Liberals as compared with 43 Catholics and 30 Liberals and Socialists in the

former Senate. Thus the general result was a set-back to the Socialist party, attributed to its too advanced attitude both in respect to internal and international politics; the disappointment of the Liberal party; and the unexpected success of the groups of the Right. The fall in the Socialist vote was even more considerable than was indicated by this loss of seats. The results of the election were a surprise to many observers, especially in respect to the comparative failure of the Liberal element. It was generally explained as due to the swing of reaction which carried the hostility to the Socialists over to the side of the extreme Right, instead of to the moderate parties who were opposed to the more radical Socialist policy. It was, apparently, a protest against the eight-hour day, the prohibition policy, and the new financial legislation. The vote went to one extreme in 1919 and it passed to the other in 1921. Aside from the fear of Socialism, there was a feeling that the country would be more safely governed by the Catholic groups which had the long experience of thirty-five years of control. A conservative and orderly government meant to many people a Catholic government, and the voters had not forgotten that the Liberals joined forces with the Socialists in 1913. The Liberal programme moreover was a democratic one which appealed to the intellectual classes and the small bourgeoisie rather than to the working class and peasantry.

NEW MINISTRY. A political deadlock followed the elections of November 20. The Socialists refused to support the government while the Catholic groups having succeeded beyond all expectations began to consolidate their party in the interest of Flamings and to draw up an extreme programme. The Liberals were firm in their refusal to ally themselves with either the Socialists or the Catholics. In this crisis the King, after taking council with the Liberals and the Catholics, appealed to M. Theunis, Minister of Finance, who was not identified with any of the party groups but who enjoyed the confidence of them all owing to his excellent record as expert financier at Versailles after the war and as delegate to the Reparations Commission as well as Finance Minister, in which capacity he had reduced expenses and consolidated a part of the floating debt. M. Theunis accepted the charge and in spite of the political difficulties succeeded in forming a cabinet of business men and specialists for the purpose of efficiency and in the spirit of political conciliation, representing especially the Catholic groups and the Liberal Left. The ministry as announced, December 16, was as follows: President of the Council and Minister of Finance, Colonel Theunis; Justice, M. Masson; Industry and Labor, M. Moversoen; Sciences and Arts, M. Hubert; Foreign Affairs, M. Jaspar; National Defense, M. Devèze; Railways, M. Neujean; Colonies, M. Louis Franck; Agriculture and Public Works, M. Rumette; Interior, M. Berryer; Public Economy, M. Van de Vyvere.

BELL, EDWARD THEODORE. Banker, died at Paterson, N. J., August 12. He was born at Stanhope, N. J., March 26, 1843, and began his business career as a messenger in the Hacketts-town, N. J., bank in 1860. By 1894 he had become president of the First National Bank of Paterson and he held offices in important social and financial institutions of the city.

BELLINGHAM, SIR (ALLAN) HENRY. Roman Catholic landlord in Ireland and Member of Parliament, died early in June in County Louth, Ireland. He was born in 1846, educated at Harrow and Oxford, studied law and was admitted to the bar, afterwards joined the Royal Irish Rifles. He was returned to Parliament as a Conservative Home Ruler in 1880 and sat until 1885.

BENNETT, CHARLES EDWIN. Classical scholar, died, May 2. He was born at Providence, R. I., April 6, 1858; graduated at Brown University, 1878, and studied at Harvard and in Germany. From 1889 to 1891 he was professor of Latin at the University of Wisconsin; 1891 to 1892, of classical philology at Brown; and after 1892 of Latin at Cornell. He edited the *Cornell Studies in Classical Philology*, wrote a variety of school and college text-books which had a wide circulation, and also edited a great variety of classical texts. He was the translator of the Odes and Epodes of Horace in the Loeb Classics. Among classical scholars he was specially praised for his work in the field of syntax; and his Latin grammar was remarkably serviceable for its clearness and its compactness.

BENNETT CUP RACE. See **AERONAUTICS.**

BENZOL. See **CHEMISTRY, INDUSTRIAL.**

BEREA COLLEGE. A non-sectarian co-educational institution at Berea, Ky., founded in 1858. The enrollment for the year 1921-22 in all departments was 2400 and the faculty numbered 140. President, William James Hutchins, D.D.

BERKELEY MUSIC FESTIVAL. See **MUSIC, Festivals.**

BERKSHIRE FESTIVAL. See **MUSIC, Festivals.**

BERLIN, GERMANY. See **MUNICIPAL GOVERNMENT.**

BERMUDA. A group of small islands constituting a British colony in the West Indies situated about 580 miles from Cape Hatteras, N. C. and 677 miles from New York; for many years a celebrated resort for American tourists. About twenty of the islands are inhabited. Area, 19.3 square miles; population Jan. 1, 1920, 21,869, of whom 7441 were whites. American visitors have numbered about 22,000 annually. Commerce and finance statistics follow:

	1916	1917	1918	1919
	£	£	£	£
Imports.....	734,799	674,493	692,742	792,683
Exports.....	139,825	207,714	119,977	208,708
Revenue.....	107,055	100,447	91,645	119,091
Expenditure.....	109,652	105,867	90,684	107,240
Shipping *.....	1,630,163	547,835	732,613	1,258,188

* Tonnage entered and cleared.

The chief imports are: Provisions, flour, and meal, cotton goods, boots and shoes, ale and beer, hardware, and cutlery, oats, coal, sugar, cattle, etc. The chief exports are onions, potatoes, and other vegetables and lily bulbs. By far the greatest share of the imports come from the United States. It is under a governor assisted by an executive council and seven members and a legislative council of nine members, both appointed by the crown; and a representative assembly of 36 members. Governor at the beginning of 1921, Sir James Willcocks.

BERTHOLF, ELLSWORTH PRICE. Officer in the United States Coast Guard known for his

services in the Arctic, died in New York City, November 11. He was born, April 7, 1866; and entered the Revenue Cutter Service as a cadet in 1885 rising to the rank of first lieutenant in 1900, captain 1907, captain commandant 1911, and commandant 1918. While still a lieutenant he accompanied Captain Francis Tuttle on the Cutter *Bear* when he went to the rescue of the 265 whalers who had been caught in the ice off Point Barrow and did such effective work that he received from Congress a gold medal. This was at the time of the Spanish-American War and he was so completely cut off from communications that he did not know until months afterwards that the war had occurred. In the winter of 1901 he made a journey alone through Siberia for the purpose of selecting a herd of reindeer for Alaska and in 1908-10 he was in command of the *Bear* in Bering sea and Arctic waters. He retired in 1919.

BESELER, HANS VON. German general, died at Berlin, December 22. He was in command of the forces that captured Antwerp during the war and was afterwards governor-general of Poland under the German occupation. He was born in Pomerania in 1850, and entered the German army in 1868. By 1904 he had risen to the rank of major-general. After the capture of Antwerp he was at the head of affairs in Belgium for a short time. He then was engaged on the eastern front, where he captured a strong Russian fortress in August, 1919. After that he operated with success against the Russians on the river Dvina. He was then made governor-general of Poland and it was he who read the manifesto of the German and Austrian emperors in respect to the independence of Poland. In 1918 as the victory of the Allies approached he was obliged to flee from Warsaw, escaping by concealing himself on board a river barge.

BESSARABIA. A former government of the Russian empire united in 1919 to Roumania. Area, 17,146 square miles; population, estimated Jan. 1, 1915, 2,686,600; estimated in 1919, 2,344,800.

BETHLEHEM BACH FESTIVAL. See **MUSIC, Festivals.**

BETHMANN-HOLLWEG, THEODORE VON. Former German Imperial Chancellor, died near Eberswalde, Germany, January 2. He was born in the province of Brandenburg in 1856, educated at the universities of Strassburg, Leipzig, and Berlin, and became president of the province of Brandenburg in 1901. He was made Minister of the Interior in 1905 and also held the post of Vice-Chancellor under Prince von Bülow. He succeeded Chancellor von Bülow July 13, 1909, and held the office of Chancellor to July 14, 1917. He was a moderate Conservative in politics and from early manhood was friend and adviser of the Emperor William. Down to the time of his appointment he had been mainly engaged on domestic questions, being in that respect a contrast to his predecessor, whose chief concern had always been foreign affairs. The popular knowledge of Bethmann-Hollweg is mainly confined to the celebrated phrase about the violation of the treaty with Belgium, likening it to a "scrap of paper," and to his declaration that the necessity which knew no law obliged Germany to hack her way without regard to the neutrality of Belgium and Luxemburg. These indicated

his general tendency to observe a certain candor in his declarations of policy and thus try to win credit for honesty. The result, however, as is well known, was quite the reverse of his expectations, these two phrases having done more to injure the German cause than almost anything else that was said either by the Germans or their enemies. His subsequent efforts to explain the phrase about the scrap of paper away served only to deepen the bad impression that it had made. The main feature of his policy toward the war, however, indicated a clearer sense of the actual conditions than was shown by the persons in control, for he opposed from the first the submarine policy and saw plainly the effect it was certain to have on the United States. But his opposition was not active and when he made the peace offer of December, 1916, he was actually aiding in preparation for the submarine warfare. It was his policy of frequently suggesting terms of peace that caused his overthrow. General Ludendorff opposed these peace overtures and they were detested by the whole military party. When he fell from power, there was no sign of regret in any quarter, official or popular.

BIBLE SOCIETY, AMERICAN. A society founded in 1816 which strives for a wider circulation of the Bible to all people without denominational or racial discrimination. The Bibles are furnished at cost prices and distributed through the society's home, foreign, and other agencies. The Home Agencies distributed 660,635 volumes in 1920; the Foreign Agencies, 2,388,241, and fields not covered by the agencies, 42,192. The society supplied the Scriptures in 149 languages in 1921, including editions in Roman and Gothic characters and embossed systems for the blind. In the circulation in the United States 101 languages were used by the Home Agencies and the Bible House Scriptures, while the foreign distribution accounted for 102 languages. The total issues of the Society in the 105 years of its service have been 141,729,340 volumes, 84,044,492 of which were in the United States, and 57,112,181 in foreign lands. The number of issues in the United States in 1920 was 1,346,941, of which 2177 were for the blind, and 2,478,460 in other lands, making a total of 3,825,401. Workers in the nine Home Agencies totalled 637, of which 455 were volunteers; workers in the eleven Foreign Agencies numbered 1275, of which 400 were volunteers. The work of revising and translating the Bible into additional languages was going on constantly and progress was reported to have been made in 1921. The year saw the completion of electroplates for the Portuguese Testament and Psalms and for the Psalms in French, Spanish, and Italian. Plates were also finished for the Gospel of Mark in Albanian. The Scriptures were printed in no new language during the year except Scriptures for the blind.

The total receipts of the society for the year from invested funds, legacies, donors, sale of books, etc., amounted to \$1,033,227.35; its expenses were \$1,053,610.85. The society has affiliations with 150 auxiliary bible societies throughout the United States which assist in the circulation of the scriptures and contribute to it. The contributions from this source in 1921 amounted to \$25,386.61.

The officers in 1921 were: Churchill H. Cutting, president; Rev. William I. Haven, LL.D., and Frank H. Mann, general secretaries; Rev. Lewis B. Chamberlain, recording secretary; and Gilbert Darlington, treasurer. The official organ of the society is *The Bible Society Record*. Headquarters are at Bible House, Astor Place, New York City.

BICKETT, THOMAS WALTER. Former governor of North Carolina, died at Raleigh, N. C., December 28. He was born at Monroe, N. C., Feb. 28, 1869, graduated at Wake Forest College in 1890, and studied law at the University of North Carolina. He began practice at Monroe, 1893, and later at Danbury, N. C. In 1907-08 he was a member of the State house of representatives; 1906-16, attorney-general of the State; 1917-21, governor of North Carolina. In politics he was a Democrat.

BICYCLING. See CYCLING.

BIGELOW, MELVILLE MADISON. Lawyer, died, May 4. He was born at Eaton Rapids, Mich., August 2, 1846; and was educated at the University of Michigan and at Harvard. He was a lecturer and professor in the University of Michigan, the Northwest University Law School, and Boston University Law School, being for some time dean of the last-named institution. He was known for his scholarly researches in the origin of the American legal system, and his essays and addresses on the relation of law to social progress. His first important work was *Placita Anglo-Normannica* (1878). His writings on the relation between law and society in general included a volume of essays and other papers entitled, *False Equation* (1911). His other works were: *The Law of Estoppel* (published in 1872; 6th edition, 1912); *The Law of Torts* (1878-1901); *History of English Procedure* (1880); *The Law of Bills, Notes and Checks* (1895-1900); *The Law of Wills* (1898); *The Law of Fraudulent Conveyances* (1911). He also edited for the American public *Jarman on Wills*. His law works have been widely circulated in this and other countries.

BILLIARDS. William Hoppe, who had long reigned supreme in professional billiards, was forced to relinquish his crown to Jacob Schaefer as the result of the world's professional 18.2 balkline championship tournament held at Chicago in November. Hoppe and Schaefer each won 5 out of 6 games but in the play-off Schaefer triumphed by a score 500 to 346. The new champion also established a record run of 436 at 18.2 balkline billiards and of 155 at 18.1 balkline billiards. During 1921 Edouard Horemans of Belgium and Roger Conti of France visited the United States and took part in several tournaments with indifferent success. Of the two, Horemans made by far the better showing. In the three-cushion professional game John Layton after being defeated by August Kieckhefer early in the year retrieved his lost laurels from the same opponent in December. The leading professional pocket billiard player was Ralph Greenleaf, who defended his championship title with success on several different occasions. Charles Heddon dethroned Percy Collins as amateur billiard champion at 18.2 balkline. Earl Looga-baugh outclassed the amateur three-cushion players, while J. Howard Shoemaker for the eighth year retained the amateur pocket billiards' title.

BIOGRAPHY. See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE, etc.

BIOLOGY. See ZOÖLOGY.

BIRDS. See ZOÖLOGY.

BIRNBAUM, ZISLAW ALEXANDER. Polish orchestral conductor, died in Berlin, October, 14 (suicide during temporary insanity). He was born at Warsaw in 1878, and at an early age attracted attention as a prodigy on the violin. In 1903-04 he was a violinist in the Boston Symphony Orchestra. His career as conductor began in 1905, in Hamburg. From 1911 till his death he directed the Warsaw Philharmonic Orchestra, also appearing as guest-conductor in the principal European cities.

BIRTH CONTROL. A mass meeting to discuss the question whether birth control was morally right was broken up by the police in New York City, November 13. The chief speakers were to be Mrs. Margaret Sanger, Miss Mary Winsor, and Mr. Harold Cox, the editor of the *Edinburgh Review*. The speakers were at first locked out but afterwards succeeded in entering the hall where in spite of the presence of a large body of police, who warned them not to speak, they attempted to make addresses. Thereupon Mrs. Sanger and Miss Winsor were arrested and brought before a magistrate. It appeared that a request for the suppression of the meeting had been received by the police from the office of the newly appointed Catholic Archbishop of New York, Patrick J. Hayes, but no complaint was made before the magistrate and it was recommended that the matter be dismissed. Mrs. Sanger announced that the meeting of the Birth Control Conference which had been prevented would be held at another hall in New York City on November 16, saying that a prominent authority of the Roman Catholic Church had been invited to the last meeting and that the Archbishop of New York would be invited to the next, and that the subject would be discussed just as it had been in her book, entitled *Women of the New Race*, which was admitted to the United States mails.

BIRTH RATE. See VITAL STATISTICS.

BISPHAM, DAVID SCULL. Opera singer, died October 2. He was born at Philadelphia, Pa., Jan. 5, 1865, graduated at Haverford College in 1876 and appeared in opera for the first time in 1891. He was afterwards at Covent Garden, London, and in the Metropolitan Opera company at New York, where he sang leading rôles in French, German, Italian, and English opera, and was regarded as among the leading lyric artists. He wrote *A Quaker Singer's Recollections* and edited song books for high schools and community singing and an album of solos.

BLACK, SAMUEL CHARLES. Clergyman, died, July 25. He was born at Monticello, Iowa, Sept. 6, 1869; graduated at Parsons College, Iowa, 1892; and McCormick Theological Seminary, Chicago, 1898. He was engaged for a time as a telegraph operator and in the banking business, but was ordained to the Presbyterian ministry in 1897. After holding pastorates at several towns in Illinois, he was minister of the Collingwood Avenue Church at Toledo, Ohio, 1910-19. On June 1, 1919, he was appointed president of Washington and Jefferson College. He wrote: *Plain Answers to Religious Questions*

(1910); *Building a Working Church* (1911); *Progress in Christian Culture* (1912).

BLACKMON, FREDERICK LEONARD. Former Congressman from Alabama, died, February 8. He was born at Limebranch, Ga. Sept. 15, 1873; and educated at the State Normal College at Jacksonville, Ala., and at Douglasville, Ga. He was admitted to the bar in 1894, and practiced from that time on at Anniston, Ala. From 1900 to 1910 he was a member of the Alabama Senate, and from 1911 to 1921 he served in the United States House of Representatives. In politics he was a Democrat.

BLACKWELL, ANTOINETTE LOUISA BROWN. First woman ordained as minister in the United States, pioneer in the woman suffrage movement, died at Elizabeth, N. J., November 5. She was born at Henrietta, N. Y., May 20, 1825, of poor parents and was obliged to earn her living when a child. After teaching school she entered Oberlin College where she formed a friendship with Lucy Stone. Inequality in the opportunities afforded to the two sexes was thrust upon her when admission to a debating society in the college was refused. She was admitted reluctantly to the Theological School of Oberlin in 1847 and when she tried to support herself by teaching the faculty prevented it by passing a rule forbidding graduates of the college to teach in the preparatory school. She addressed the first national woman's rights convention at Worcester, Mass., in 1850. This occasioned so much scandal that she lost her position as a worker in a woman's society in New York City. Afterwards she became a lecturer and gained a considerable degree of popularity and success. In 1853 she was ordained as an orthodox Congregational minister and was afterwards appointed by the church as a delegate to the World's Temperance Convention in New York City. Both her ordination and her appearance at the Temperance Convention raised loud protests from the religious press and the ministry. At the Convention the audience composed largely of ministers shouted her down and she was not permitted to finish her speech. She afterwards resigned from the Congregational ministry and became a Unitarian. In the suffrage campaign she was associated with Susan B. Anthony and Julia Ward Howe, accompanying them in their lecture tours. Among her writings may be mentioned *Studies in General Science* (1869); *The Sexes Throughout Nature* (1875); *The Philosophy of Individuality* (1893); *The Making of the Universe* (1914); and a novel entitled *The Island Neighbors* (1871).

BLANCK, MARGOT DE. See MUSIC, Artists, Instrumentalists.

BLESSING, GEORGE FREDERICK. Mechanical engineer, died, June 25. He was born at Carrollton, Ky., July 2, 1875; and graduated in mechanical engineering at the State University of Kentucky, 1879. He taught mechanical engineering in the Nevada State University from 1899 to 1904, meanwhile, having done important designing and research work for large industrial plants, including especially, steam turbine pumps. He was professor of mechanical engineering and in charge of the engineering department at Swarthmore College after 1908, and in 1918 engineer in plant facilities under the United States Ordnance Department. He wrote elementary books on drawing and descriptive geometry, and also in

1917 a volume on *The Small College and Technical Education*.

BLOMFIELD, SIR RICHARD MASSIE. British admiral, died in London, June 25. He was born March 3, 1835, entered the Royal Navy in 1848 and was present at the bombardment of Alexandria in 1882 and a member of the landing party, having risen to the rank of captain. He remained for nearly thirty years in the Egyptian service in which he became director-general of ports and lighthouses and afterwards controller-general, and director-general. He was made a rear-admiral in 1889. The achievement for which he was best known was the improvement of the great harbor of Alexandria.

BLOUNT, WILLIAM ALEXANDER. See NECROLOGY.

BLYDENBURGH, CHARLES EDWARD. Judge, died, April 20. He was born at Brooklyn, N. Y., March 19, 1854, and graduated at the Columbia School of Mines, 1878. He went soon afterwards to Wyoming where he was in charge of the territorial assay office until 1880. He was admitted to the Wyoming bar in 1889, a delegate to the Democratic National Convention in 1900, and associate justice of the supreme court of Wyoming from Oct. 4, 1917, to the time of his death. From 1915 to 1919 he represented Wyoming at the Conference on Uniform State Laws.

BOGART, JOHN B. Journalist, died in New York City, November 16. For seventeen years, from 1873 to 1890, he was city editor of the *New York Sun*. He was born in 1845, ran away when a boy and served in the Civil War and in 1871 became a reporter on the *Sun*. He was regarded as one of those who gave that newspaper its individual quality and he was highly esteemed in journalistic circles, being particularly successful in the training of young journalists.

BOHEMIA. A former crownland of Austria which after the collapse of the Central Powers in 1918 became a constituent member of the new Czecho-Slovak state (see CZECHO-SLOVAK); situated in the northwestern part of the former Austro-Hungarian empire; bounded on the north by Saxony and Silesia, on the east by Moravia, and on the south by Moravia and Lower and Upper Austria. The area is about 20,065 square miles; population, 1910, 6,768,548; estimated, 1913, 6,860,029. The race elements according to the census of 1910 were: German-speaking, 36.7 per cent; Bohemian, Moravian, and Slovak, 63.19 per cent. According to the same census the Catholics constituted 95.6 per cent of the population. Prague, the capital and largest city, had an estimated population, June 30, 1914, of 541,500, including suburbs. In 1910 over 2,000,000 of the people were reported as engaged in agriculture, and 2,780,457 in industries. In the old empire the country was governed locally by a single chamber which was represented in the lower house of the Reichsrath by 130 members. Under the new Czecho-Slovak constitution five out of the fifteen electoral areas were assigned to Bohemia.

BOILERS. In this important department of the steam power plant there were few notable developments outside of refinements and steps towards increased capacity to record in 1921, but the following items derived in larger measure from the annual review in *Power* (New York) give the mere significant features of the year.

There seemed to be a tendency during the year to secure greater furnace volume, that is in relation to the area of water heating surface, along with the increased temperatures sometimes employed. There were experienced difficulties with the refractory materials used in the furnaces, valves, expansion joints, and pipe line rather than in the boiler and steam turbine. As a result there was not in 1921 the general desire to employ temperatures for the superheated steam approaching 700 degrees F., and in several new larger plants steam temperatures of about 600 degrees F. were employed. In particular was this true for America, but in Europe with the effort for increased economy and higher fuel costs as at the North Tees station in England and the Superpower Station in Paris steam temperatures of 700 degrees or more were being employed or higher than was found in American practice. In the English plant mentioned a pressure of 450 lbs. was also a notable feature.

The tendency in the boilers for the larger power units was to use cross-drum boilers of the modified Stirling type with bent tubes in ever increasing sizes. These were arrayed so that the boilers could be knocked down and assembled where they were to be erected. The largest boilers in operation at American power plants were those of the Detroit-Edison Company and the Ford River Rouge Plant, but ordinarily for the larger central stations the surface per boiler varied from 14,000 to 20,000 square feet and the steam capacity from 125,000 to 200,000 lbs. per hour. A double-ended boiler of Annelly design installed in the Congress Street Heating plant of the Detroit Edison Co. had a record for surface with 29,820 square feet. This boiler was designed to supply steam at from 75 to 160 lbs. pressure. In the new Calumet Station of the Commonwealth Edison Company of Chicago which was put in commission there were seven cross-drum boilers each of 15,089 square feet heating surface supplying steam to two 30,000 kw. turbines. These had a final steam temperature of 685° F. derived from a pressure of 350 lbs. and 250° F. of superheat, the aim being to supply steam to the turbines at 300 lbs. pressure and 225° of superheat, in which case the final steam temperature was 650° F.

At the great Ford Motor Co. Plant at River Rouge, Mich., the four largest boilers for power purposes in the United States were in operation. In these boilers powdered coal and blast furnace gas were burned and with the former unusually high efficiency was secured without difficulty of any kind. Here a steam temperature of 600° F. was used with a pressure of 225 lbs. and superheat of 200° F. These boilers had vertical heating elements on either side and were 83 feet in height above the ash floor. Here on account of the different fuels used there was a larger furnace volume amounting to about 0.5 cubic feet per square foot of steam making surface.

These cross-drum boilers of 16,000 square feet each with superheaters, but no economizers, were installed in the Seward Station of the Penn. Public Service Corporation, a mine-mouth plant which had two 20,000 kw. units but was planned for subsequent enlargement to a capacity of 100,000 kw. Here a steam temperature of 596° F. was used attained by a pressure of 280 lbs. and a superheat of 180° at 200 per cent rating. Four

boilers each with 14,000 square feet of water heating surface, one-quarter of the proposed installation, were put in use at the South Meadow plant of the Hartford Electric Light Co., at Hartford, Conn., which ultimately was to have 130,000 kw. capacity, though in 1921 only one 20,000 kw. unit was in operation. Here there would be a steam temperature of 640° F. at 200 per cent rating when operating at a pressure of 275 lbs. and a superheat of 225° F. One of the important boiler installations of the year was at the Delaware Station of the Philadelphia Electric Co. where eight boilers serve two 30,000 kw. turbine units. Each boiler had 15,080 square feet of steam-making surface or counting in the economizer, which was an integral part of the installation 19,030 feet or a furnace volume of 0.48 cubic feet. The steam temperature in these boilers was to be approximately 600° F. or at the turbine throttle about 575° F. on the average. The boilers were designed to operate at a pressure of 250 lbs. and the superheat was to range from 170° F. at normal rating of the boiler to 220° F. at the maximum rating of 330 per cent. This plant was interesting in that the furnaces were averaged for burning either bituminous coal or stokers, powdered bituminous coal, powdered anthracite or oil. During the year the Hell Gate plant of the United Electric Light and Power Co. of New York City was being constructed. There were being installed 12 of the 24 boilers each of 18,900 square feet of water-heating surface. These were double stoked and used a total steam temperature of approximately 600° F. operating without economizers.

BOILER EXPLOSIONS. Naturally with a large number of industrial plants either shut down or operating at reduced capacity there were fewer serious and fatal boiler explosions in 1921 than usual. Among the return-tubular boiler accidents resulting in fatalities, were the explosions at Monterey, Tenn.; at Taft, Calif.; and at Lumber, S. C. The most serious accident of the year was at Mechanicsville, N. Y., where a return-tubular boiler exploded from overpressure due to a defective safety valve. This explosion resulted in four killed and property damages in excess of \$40,000.

During the year there was held the first annual convention of the National Board of Boiler and Pressure Vessel Inspectors, organized in the interest of securing greater safety to life and property through concerted action and maintaining uniformity in the construction, installation and inspection of steam boilers and other pressure vessels and their appurtenances, and to secure interchangeability between political subdivisions of the country. Further progress toward uniform laws and rules, one of the objects of this organization, was secured and the A. S. M. E. Code was adopted and was acceptable to the departments of seventeen States and twelve smaller political divisions represented on the board. See RAILWAY ACCIDENTS.

BOKHARA. A state of central Asia bounded on the north by the Russian provinces of Syrdaria and Samarkand; on the south by Afghanistan; on the east by Ferghana; and on the southwest by Trans-Caspia and Khiva; formerly under the Russian empire. The area is estimated at 83,000 square miles and the population at about 1,250,000. The chief towns are Bokhara with about 75,000 inhabitants, and Karshi with

about 25,000. The chief products are wheat, fruit, silk, tobacco, cotton, hemp, and farm animals. Camels are also raised. Mineral resources include: Gold, salt, alum, and sulphur. There is a considerable trade with India to which the country exports raw silk, and from which it imports green tea, indigo, muslins, drugs, etc. The Amir, Sayid Mir Alim Khan, was driven out after the revolution of August 30, 1919, and a Soviet government was set up.

BOLIVIA. A South American republic of the interior, lying to the west of Brazil and to the east of Chile. The actual seat of the government and largest city is La Paz, but Sucre is the seat of the supreme court and is historically considered the capital.

AREA AND POPULATION. The area is estimated at from 514,155 to 532,437 square miles and with the inclusion of the disputed territory, 562,047; population in the census of 1900 was 1,744,568; estimated in 1915 at 2,889,970. La Paz has a population estimated in 1918 of 107,252; Cochabamba, 31,014; Potosi, 29,795; Sucre, 29,686.

EDUCATION. Elementary education is free and compulsory. No later figures were available than those given in the preceding YEAR BOOK. Elementary schools (1918) numbered 450 with 3960 teachers and 54,192 pupils. For secondary instruction there were: 21 colleges of which 14 were national; 5 clerical institutions; and 5 private lycées. For higher education there are two universities, at Sucre and La Paz, respectively.

PRODUCTION. Agriculture while it is the main occupation is still backward. The cultivated area, according to the latest available figures which, however, are not recent, had an acreage of 4,940,000, but measures have latterly been taken for extending the cultivable area by means of irrigation. The chief crops are: Corn, wheat, barley, beans, potatoes, and other vegetables, which are mainly produced for home consumption, and rubber, which is the main commercial crop, Bolivia standing next to Brazil as a rubber-exporting country. The mineral resources include: Tin, copper, antimony, bismuth, wolfram, lead, silver, gold, borate of lime, and other minerals. The output of tin constitutes one-quarter of the world's production, Bolivia ranking in this respect next to the Malay Peninsula. The minerals constitute a more important part of the economic life of Bolivia than in any other South American country. In 1919, 87.88 per cent of the total exports consisted of minerals which were valued at 126,632,675 bolivianos or \$49,300,633. Oil abounds but has not been much exploited. It was reported that in certain portions of the country that oil was so plentiful on the surface that the natives were accustomed to take it in pail-fuls from holes for local use.

COMMERCE. The principal imports are: Provisions; wines, and spirits; hardware; cotton, woolen, linen, and silk goods; and clothing. The chief exports are: Tin, rubber, and silver. The foreign trade for 1919 was: Imports, £4,824,671; exports, £11,225,799. There was an increase in the imports and a decrease in the exports as compared with the preceding year. In 1919 Great Britain took 49 per cent of the exports and the United States 41 per cent. In 1920 the exports from Bolivia to the United Kingdom amounted to £1,931,203; imports from the United Kingdom to Bolivia, £747,296.

FINANCE. The following information in respect to the 1921 budget was supplied by the *Pan-American Union* in 1921: According to the budget, expenditures for the fiscal year of 1921 have been proportioned to the departments of the government as follows: Legislative, 630,631.50 bolivianos; foreign relations, 1,145,560 bolivianos; churches, 103,780 bolivianos; Government, 5,066,207 bolivianos; courts of justice, 1,975,860.07 bolivianos; Treasury, 25,654,563.82 bolivianos; industry, 146,800 bolivianos; public education, 3,220,381.25 bolivianos; agriculture, 30,000 bolivianos; commerce, 882,779.06 bolivianos; militia, 7,501,277.10 bolivianos; colonization, 529,748.60 bolivianos; total, 46,887,588.40 bolivianos.

COMMUNICATIONS. The railway open for traffic in 1918 had a mileage of 1354. The principal line is the Antofagasta and Bolivian railway. During 1921 American financial and engineering interests entered into a contract with the Bolivian government for the construction of a railway 128 miles in length to connect the railways of Bolivia with those of Argentina. The new line was planned to extend from Atocha, Bolivia, to Villazon, on the Argentine frontier, and in connection with existing railways, would afford a transcontinental route from the Pacific to Buenos Aires. The financial arrangement made by the American capitalists involved the purchase of \$7,000,000 of Bolivian 8 per cent bonds, the proceeds of which would be applied to construction costs. These bonds were to be secured by a first lien on export duties on rubber and minerals and an absolute mortgage on the railway.

GOVERNMENT. Executive power is in a president elected for four years by direct popular vote, and ineligible for reelection, and in a cabinet of six departments; and legislative power is in a congress of two houses, the senate with sixteen members elected for six years, and chamber of deputies with seventy members elected for four years. The president elected for the term 1921-25 was Dr. Bautista Saavedra.

HISTORY. On January 24, the national assembly elected Señor Saavedra, president, and his government was recognized by the United States, February 10. He had led a successful revolution during the previous year which had overthrown the government of President Guerra. In the summer the Bolivian government requested the Secretary of the League of Nations to refer to the Assembly one of the aspects of the Tacna-Arica dispute and early in September Bolivia requested of the League the revision of the treaty of 1904 with Chile whereby Chile's rights in Antofagasta were recognized while Bolivia secured from Chile the custom houses there and at Arica, as well as the promise on Chile's part to build a railway from Arica to La Paz. Discussion of the question before the League was postponed. On September 11, Chile consented to the reference of her dispute with Bolivia over the treaty of 1904, to a commission of three jurists. On December 25 the Bolivian government declared in a note to Chile that there was no treaty which could condemn a country to be forever deprived of free access to the sea. The government of Bolivia declared just as Peru had done that the question of the Pacific could not be confined to a discussion of the third treaty of Ancon but must deal with all the causes of future conflicts. That was why, it added, the Bolivian government was obliged to call the

attention of any one who was interested in the problems of the Pacific in order that Bolivia might participate therein since there could not be any solution which did not relieve Bolivia from the geographical injury that she suffered. The note also cited certain violations that Chile was alleged to have committed against the treaty of 1903 and declared that the difference of opinion could only be reconciled by means of an international conference. Competition on the part of European interests was increasing during the year. Railway development was advanced by a contract with an American company for the building of a line which would unite the railway systems of Bolivia and Argentina. Statistics published during the year indicated that Bolivia had made great progress in the past few years in the production of tin.

BOLO, MONSIGNOR. See **NECROLOGY.**

BOLOGNA, CLEMENTE. Italian baritone, died in New York, April 9. He was born in Genoa, 1856. Having established his reputation at various Italian theatres, he sang with great success in the United States under Strakosch and Mapleson. For thirty-nine years he was soloist at the Temple Emanu-El in New York.

BOLSHEVISM. See **WAR OF THE NATIONS; SOCIALISM; RUSSIA;** and articles on countries under **HISTORY.**

BOMBING OF SURFACE VESSELS BY AIRCRAFT. See **NAVAL PROGRESS.**

BONAPARTE, CHARLES JOSEPH. Former Attorney-General of the United States, died, June 28. He was born at Baltimore, Md., June 9, 1851, the son of Jerome Napoleon; graduated at Harvard, 1871, and Harvard Law School, 1874. He practiced law in Baltimore, where he took a prominent part in municipal and national affairs. He was on the board of Indian Commissioners (1902-04); chairman of the National Civil Reform League (1904); president of the National Municipal League (1905); and in the latter year was made Secretary of the Navy, from which office he was appointed in the following year, to that of Attorney-General. He was a strong supporter of Roosevelt, and a leader among the Progressives. Among the important non-political positions held by him may be mentioned those of overseer of Harvard University and trustee of the Catholic University of America. He was made a member of the Council of National Defense in 1917. He wrote: *The Essential Elements in Good City Government* (1901); *Some Duties and Responsibilities of American Catholics* (1905); and *Civil Service as a Moral Reform Question*.

BONDS, MUNICIPAL. See **MUNICIPAL GOVERNMENT.**

BONUCCI, ARTURO. See **MUSIC, Artists, Instrumentalists.**

BOOHER, CHARLES F. Former Congressman from Missouri, died, January 21. He was born at East Groveland, N. Y. Jan. 31, 1848; educated in the district schools, and having been admitted to the bar in 1871, began the practice of law in Savannah, Mo., of which city he was mayor for six years. He was appointed to the Fiftieth Congress for an unexpired term, and again to the Sixtieth Congress, serving from 1907 to 1921. In politics he was a Democrat.

BOOK, GEORGE MILTON. Naval officer, died, January 22. He was born at New Castle, Pa.,

May 25, 1845. He graduated at the Naval Academy in 1865, and had risen to the rank of captain in 1899. He served in the latter part of the Civil War on board the *Marblehead* in pursuit of Confederate vessels in 1864. After the war he served successively on several vessels, and from 1875 to 1876 was at the navy yard at Norfolk, and from 1890-93 at the navy yard at New York. He was again assigned to the navy yard at Norfolk from 1895 to 1896, and in 1897 to the navy yard at Mare Island. He was retired in 1900 with the rank of rear-admiral.

BOOKER, CHARLES F. See **NECROLOGY**.

BOOT AND SHOE INDUSTRY. This industry in 1921 was typical of the deflation and general depression prevalent in the United States. Prices declined to somewhere near pre-war levels and at most shoe manufacturing centres production was curtailed or restricted. There was a tendency to reduce the number of styles of shoes while low shoes both for men and women continued to have a wide vogue. While figures of total production were not available at the end of the year the following returns from representative centres may be considered typical. Thus from Brockton, Mass., in 1921 there were shipped 631,536 cases of shoes or 15,788,400 pairs, valued at \$102,624,600, as compared with 611,006 cases of 15,257,150 pairs valued at \$110,744,837.50 in 1920, representing an increase of 513,250 pairs but a loss in value of \$8,120,237.50. In Brockton the union shoe workers numbered 12,300. The average output of the factories for the year was not over 65 per cent their capacity, the smaller firms being the busiest and in most instances approaching nearer to their capacity than did the larger plants. Milwaukee also was an important shoe and leather centre in 1921, there being 31 shoe firms employing 6113 persons with wages of \$5,682,267 and turning out products valued at \$27,613,760. Baltimore, Md., was developing an important shoe manufacturing industry with an annual output of more than 2,000,000 pairs valued at about \$ 5,000,000. In addition there was a wholesale business amounting to about \$25,000,000.

In 1921 the exports of boots and shoes from the United States totaled 8,957,697 pairs valued at \$24,678,701 as compared with 16,841,592 pairs valued at \$67,144,342 in 1920. Naturally boot and shoe manufacturers were anxious that no high protective duties should be placed on their raw materials in any revision of the tariff.

There was some activity in the shoe manufacturing industry in Germany during the year though towards the end of the year it was largely confined to foreign orders as the domestic demand had been filled up to the purchasing power of wage earners who were unable in many cases to pay the prevailing prices. See **LEATHER**.

BORAX. RECORD PRODUCTION OF BORAX IN 1920. The quantity of borax produced and sold in the United States in 1920 was 35,280 short tons, valued at \$5,674,000, according to the United States Geological Survey. This was a record production and value, exceeding even those of 1919—28,518 tons and \$4,351,891—which were higher than those of any previous year. For many years borax has been manufactured in the United States from the mineral colemanite, a calcium borate, which is mined in California, but for the last two years some borax

has also been obtained from the water of Searles Lake, Calif., as it is one of the salts that the brine yields by a certain method of treatment. This method of treatment marks a new departure in the borax industry and recalls the old days in the 60's when borax was made by recrystallizing the crude salt found in the mud of Borax Lake. The total quantity of crude borates produced in the United States in 1920 amounted to 120,320 tons, valued at \$2,173,000. This was a record in quantity though not in value, on account of the lower grade of the ores. Borax, called in chemistry sodium tetraborate, is used in large quantities in making the enameled coating for cast-iron and steel ware used in plumbing fixtures, chemical equipment, and kitchen utensils. It is also a constituent of borosilicate glasses, such as are employed in making lamp chimneys, baking dishes, and laboratory glassware. Borax is also used in the laundry and kitchen, in making soap and starch, in paper sizing, and in tanning and welding.

BORNEO. See **BRITISH NORTH BORNEO**.

BOSNIA. See **BOSNIA AND HERZEGOVINA**.

BOSNIA AND HERZEGOVINA. Former provinces of the Turkish empire, acquired by Austria-Hungary in 1908, and after the collapse of the Austrian Hungarian empire included in the new southern Slav state, Jugo-Slavia (q. v.). Area, 20,709 square miles, population estimated in 1920, 1,931,802.

BOSTON, UNIVERSITY OF. A non-sectarian institution of the higher learning at Boston, Mass.; founded in 1869. The enrollment for the fall of 1921 was 8543, of whom 5089 were men and 3454 were women. Of this total, 3212 were in the college of business administration. The next largest department was that of secretarial science, 969, and the next of education, 842. The summer school enrollment was 672. The productive funds amounted to \$4,384,108 and the income to \$1,064,059. The library contained 77,539 volumes. The university comprises besides the departments mentioned above, colleges or schools of liberal arts, teachers, theology, law, medicine, a graduate school and a school of religious education and social service. In the winter of 1921 a campaign for the fiftieth anniversary fund for endowment and development was going on and at the close of the year \$300,000 had been already subscribed. President, Lemuel Herbert Murlin.

BOSTON, MASS. See **GARBAGE AND REFUSE DISPOSAL**.

BOSTON SYMPHONY ORCHESTRA. See **MUSIC, Orchestras, Novelties**.

BOTANY. Important meetings of botanists were held in conjunction with many of the annual meetings of national scientific societies. The Botanical Society of America, American Phytopathological Society, Ecological Society of America, and other affiliated societies met with the American Association for the Advancement of Science at Toronto, Canada, Dec. 27-31, 1921. One of the outstanding events of this meeting was the address of Professor William Bateson on Evolutionary Faith and Modern Doubt, in which he expressed disagreement with the usual conception of the common origin of species and of the acquisition of new characters by plants and animals. The summer meeting of the American Phytopathological Society and the conference of

Cereal Pathologists was held at St. Paul, Minn., and Fargo, N. D., July 19-22, 1921.

The British Association for the Advancement of Science met at Edinburgh, Scotland, Sept. 7-14, 1921. The annual meeting of the French Association for the Advancement of Science, was held at Rouen, August 1-7, 1921. The South African Association met at Durban, July 11-16, 1921. The British Mycological Society met in London, Nov. 19, 1921. The Association of Economic Biologists met in London Dec. 9, 1921. An International Potato Congress was held in London, Nov. 15-18, 1921, special consideration being given to plant breeding and potato diseases. The Botanical Society of India has been organized as a result of encouragement given by the Indian Scientific Congress at its meeting in 1920. A Russian Mycological and Phytopathological Society was established in 1921 with Dr. A. A. Jaczewski as president. The National Institute of Agricultural Botany, established in connection with the University of Cambridge, was formally opened Oct. 7, 1921. A Division of Mycology and Plant Pathology was established in the Department of Agriculture, Manila, P. I. A Plant Breeding Institute has been established at Aberystwyth, Wales. The Tropical Research Laboratory of the United Fruit Company, closed during the war, has been reopened for investigations on plant diseases at Changuinola, Panama.

Revue de Botanique appliquée et Agriculture Coloniale is a new publication begun by the Laboratoire d'Agriculture Coloniale, Paris. The Biological Division for Agriculture and Forestry, Berlin-Dahlen, has begun a monthly bulletin devoted to matters of current interest to the plant protection service.

Among botanists of international note who recently died are: Dr. Hans Solerederer, professor of botany, University of Erlangen, Nov. 8, 1920; Dr. G. Cuboni, director of the Plant Pathology Experiment Station, Rome, Nov. 3, 1920; Dr. G. Hieronymus, editor of *Hedwigia*, Jan. 18, 1921; Emile Bourquelot, plant chemist, Jan. 26, 1921; L. Matruchot, University of Paris, July 6, 1921.

A large amount of botanical literature appeared during the year, only a very small part of which can be noted.

PHYSIOLOGICAL STUDIES.—Several investigators are continuing their studies on growth by the study of artificial cells, gels, biocolloids, etc. Some of the gels are found to possess properties of diffusion and permeability simulating those exhibited by protoplasm. The methods of Osterhout for the study of permeability by electrical conductivity is being quite extensively used and Raber found antagonisms exhibited between the anions of certain compounds. Quite a number of compounds were found to decrease resistance to permeability. Investigations at the Carlsberg Laboratory of the relation between the hydrogen-ion concentration and the natural distribution of plants are said to show that the quantity of nutrient substances in soils does not materially affect the distribution of plants. It is considered probable that the hydrogen-ion concentration in soils may have a direct influence on the constitution of vegetation.

The osmotic properties of plant cells under the influence of low temperatures was investigated by Lewis and Tuttle and they found change

in osmotic pressure was due to the non-electrolytes in the plant cells. Sap expressed from *Pyrola* leaves froze at about -3°C . while the leaves themselves could be cooled to -32°C . before freezing. Panatelli found injury to plant cells was in proportion to the loss of water during cooling. Sugars and other carbohydrates, phosphates, and a lack of autodigestive enzymes, enable plants to retain water when undercooled. Onslow made a study of oxidizing enzymes in 286 orders of higher plants and found such enzymes present in about 60 per cent of the orders examined. Hepburn and associates report proteolytic enzymes in all the species of *Sarracenia* examined but none were found in *Darlingtonia*. The unopened pitchers of these plants were free of bacteria but open ones soon contained proteolytic bacteria.

Delf reports on a study of accessory food factors in plants and found vitamins may be produced in connection with photosynthesis or with the deposition of reserves in various parts of the plant. Linoesier, Gortner and others report that certain fungi require vitamins for their growth or at least their development is greatly favored by the presence of such accessories in culture media. Wann found certain algae are able to fix free atmospheric nitrogen when grown in cultures containing glucose and nitrates. Loeb has added to his contributions to the regeneration of *Bryophyllum*, and claims in defoliated stems the mass of new shoots from a long stem is equal to the mass that would be produced by the same length of stem cut to single nodes. The polar character of regeneration of shoots is considered due to the fact that the material available for growth reaches the apical regions of the shoot and none is transferred to the lateral buds on a long stem.

Sinnot found the size of the plant body is not the direct causative factor in determining the size of the leaves, fruits, or seeds which it produces but the size of such organs is the result of the size of the growing point out of which they have been developed. Any factor, as drought, cold, etc., that influences the size of the meristem, will alter the size of organs produced from it. Dixon and Poole, discussing the electrotonic theory in relation to photosynthesis, report that negative electrons are responsible for the absorption of radiant energy from the ether and by this means chlorophyll renders carbon dioxide and water reactive in the presence of light. Moore claims photosynthesis occurs throughout the spectrum and that chlorophyll acts as a color screen to protect the organism against the injurious effects of blue and ultra violet rays. Investigations of Briggs seem to indicate the presence of some other factor in addition to chlorophyll necessary for the photosynthetic activity of leaves, and this factor increases with age during the early stages of leaf development. Coupin found etiolated cotyledons and leaves require from 1 to 5 days in maximum light to develop chlorophyll. Starvation due to absence of light required 15 to 60 days with different plants. Wurmsier found that for equal amounts of absorbed energy photosynthesis was most active in the green light where absorption is the least.

Experiments have been reported in Germany and elsewhere on the effect of added amounts of carbon dioxide on plant growth, and where largely increased amounts of the gas were avail-

able increases in crop production of from 18 to 210 per cent were reported. Frenkel found plants grown under glass jars absorbed carbon dioxide very rapidly and Gradenwitz reports increased growth and fruit production in greenhouses supplied with purified carbon dioxide from waste gases of industrial works. Tjebbes and Uphof claim large financial benefits from growing plants under electric light when carbon dioxide was freely added to the atmosphere.

Studies were reported on the effect of poison gases, etc., on plants. Mieghe found chloropicrin is decidedly detrimental to the germination of grass seeds. Guerin and Lormand found exposure of plants for two hours to small amounts of chlorin, chloropicrin, bromacetone, and mustard gas caused the leaves to fall without any other injury to the plants. Ewert claims the injury to plants by coal tar is due very largely to anthracene. Ciamician and Ravenna found butylamin causes albinism in leaves. Isoamylamin is even more active in this respect. Plants that contain specific poisonous compounds are immune to the toxic effect of the same poisons.

PLANT BREEDING. Bonnier has reported on thirty years' experiments in transferring lowland plants in the same soil to mountains and he claims they now show the same characters as typical Alpine species of the same genera. He claims the environment is one of the principal causes of transformations in organisms. Rawson reports that by screening plants at selected intervals of daylight, latent potentialities are brought out that are fixed without further screening. A double poppy is said to have been produced in this manner. Anthony has given an account of selection experiments with violets in which definite strains were secured. The occurrence of asexually inherited differences is considered due to their presence before the experiment began and not to the advent of new characters.

Brainard and Peitersen, from an extended study of blackberries in New England, claim there is no question of hybridization being responsible for the production of new species in this group. Stomps has taken exception to the claim of Correns that white variegation in *Eurotia* is due to disease. Saunders claims that chromosomes are the hereditary mechanism in plants as well as in animals and that the cytoplasm, aside from the nucleus, has no special hereditary function. Richey has shown marked inequalities in three sets of reciprocal maize crosses which he attributes to inequality of food materials furnished by the pistillate plants, as well as to different reactions of the germ plasma.

East and Jones claim high protein strains of maize can be obtained more quickly by the isolation and recombination of homozygous high protein strains than by the method of mass selection. Kempton described a dwarf type of maize that appeared in the F₂ generation of a cross between Algerian pop corn and Chinese waxy endosperm maize. The new form is believed to be especially valuable for dryland agriculture.

There were published during the year a large number of contributions to various phases of plant breeding but their technical character prevents adequate notice in this place. Considerable attention has been given to the breeding of plants resistant to diseases, and progress has been reported in securing varieties of important crops

that are quite resistant and in some cases immune to destructive diseases. Evidence has been submitted by Hodson, Collins, and others that seems to indicate that the American chestnut is acquiring a degree of resistance to the chestnut blight. In most cases cited resistance to disease appears to be inherited by the progeny of the new varieties.

PLANT DISEASES. The Plant Disease Survey of the U. S. Department of Agriculture reported reduced crop production due to diseases in 1920 as follows: Wheat, 104,129,000; oats, 78,199,000; corn, 220,862,000; potatoes, 119,474,000; sweet potatoes, 39,150,000; peaches, 10,505,000; apples, 47,474,000 bushels and cotton, 2,002,000 bales. Extreme heat and lack of moisture in many portions of the country in 1921 very greatly reduced the losses of many crops through the nonappearance or late attack of destructive diseases. The stem rust of wheat was less abundant on winter and spring wheat in the United States than has been the case for several years.

The white pine blister rust, that has been present for some time in the white pine area from New England to Wisconsin and Minnesota, was found on currants and gooseberries in Wayne County, Pa., during the year. Continued efforts are being made to control this disease by the destruction of currants and gooseberries that serve as alternate hosts of the fungus. Since the beginning of this work 123,034 acres of land have been cleared of these shrubs at a cost of 51.5 cents per acre. Late in 1921 the fungus was found on planted pine trees at Vancouver, British Columbia, and on cultivated black currants in other places in that vicinity. It has also spread to northwestern Washington. Studies made in Europe have shown the western white pine and sugar pine are readily attacked by the fungus causing the blister blight and the presence of the fungus in this region threatens the destruction of timber valued at over \$220,000,000. The chestnut blight is steadily spreading southward and westward through the Appalachian Mountains. Eight additional counties in West Virginia, three in Virginia, and seven in North Carolina were reported infested in 1921. In New Jersey and Pennsylvania where the disease has been present for some years less than 1 per cent of the original chestnut trees are alive.

The Florida Plant Board reported no new nursery infections of citrus canker for the quarter ended Sept. 30, 1921, and only 5 infected orchards within the State. No new infections have been observed since 1920. Citrus canker now appears to be under control throughout the Gulf region where it has prevailed for some years. Plant pathologists throughout the sugar cane-producing countries are giving much attention to the mosaic or yellow stripe disease. Described in Java in 1898, this disease has spread to many of the most important sugar-producing countries, and during the past year it has been found in all the sugar producing areas of Louisiana. The extent to which it reduces yields has not been determined. Experiments in Porto Rico seem to show that roguing the fields, reducing the number of ratoon crops and planting resistant varieties of cane offer means of control.

The same disease apparently attacks corn and a number of grasses. Mats reports the presence of a plasmodium-like body in infected areas of diseased canes, and Kunkel has confirmed their

presence in corn attacked by mosaic. In Hawaii the disease on corn is said to be much more destructive than on sugar cane. Wilbrink has studied sugar cane gummosis in Java and claims the disease is due to anaerobic bacteria. This disease has recently appeared in Porto Rico where it is causing some loss.

Thomas and Kirby, who reported the suspected presence of take all of wheat in New York in 1920, have made additional studies of the disease and found it was due to *Ophiobolus graminis* identical with that species as known in Europe, Australia, and elsewhere. Apparently the same fungus is reported as having been observed in 1921 in wheat fields of Indiana, Arkansas, and Oregon. Outbreaks of a foot disease of wheat are reported in Illinois, Kentucky, and Kansas but they have not been definitely connected with the take all fungus. The flag smut of wheat due to *Urocystis tritici* reported in Madison County, Ill., in 1919 has spread somewhat in the original area and is now known to be present in an adjoining county.

A downy mildew of wheat caused by *Sclerospora macrospora* was reported in several localities in Tennessee and Kentucky. An additional downy mildew of corn, sugar cane, and various grasses in the Philippines was described by Weston. Mackie reported a new disease of wheat in California due to *Leptosphaeria* sp. A severe epidemic of ergot on rye and durum wheat was reported in North Dakota. Root, stalk, and ear rots of corn due to *Gibberella saubinetii*, *Fusarium* spp., etc., were of common occurrence during the past season causing considerable losses. The corn ear worm was very prevalent in the corn-growing States during 1921 and an increased amount of kernel rot and moldy corn is reported. *Cephalosporium sacchari*, a fungus originally described on sugar cane in India, was reported by Manns and Adams for the first time as a parasite of corn in this country.

The Plant Disease Survey and various state organizations are continuing their search for the potato wart disease due to *Chrysophyctis endobiotica*, and report it in three new localities in Maryland and two in Pennsylvania. Potato wart seems to be confined in this country to gardens in certain mining and lumbering districts of Pennsylvania, Maryland, and West Virginia. Investigations conducted in Europe indicate the organism may remain active in the soil for eight years or more. During 1921 potato wart was discovered in five districts in Holland near the German border. Considerable attention was given to certain obscure diseases of the potato that appear to be transmissible but the exact causes of which are as yet unknown. Among this complex of diseases, mosaic, leaf roll, net necrosis, spindling sprout and others have been differentiated.

Early in the spring of 1921 Smith and McKenney reported a dangerous disease of tobacco due to *Peronospora hyoscyami* present in Florida and Georgia. This fungus was known to attack tobacco in seed beds in Australia, South Africa, and elsewhere but it had not hitherto been recorded in cultivated tobacco in this country. Wildfire, a bacterial disease of tobacco, appeared in a number of new localities in the United States.

A large number of new plant diseases were described during the year, some of which, together with the attributed causes, are given below.

Leaf spot of celery (*Pseudomonas apii*), rot of lettuce and celery (*Sclerotinia minor*), bud rot of cannas (*Bacterium cannae*), tomato leaf spot (*Bacterium exiliatum*), cotton blight (*Phoma* sp.), leaf spot of velvet beans (*Aplanobacter stizolobii*), bacteriosis of barley (*Bacillus cerealeum*), rot of rhubarb (*Phytophthora terrestris*), peony bud rot (*Phytophthora* sp.), collar rot of tomato (*Verticillium lycopersici*), bacterial disease of castor beans (*Bacterium solanacearum*), bacteriosis of gladiolus (*Bacterium marginatum*), nematode disease of bananas (*Tylenchus musicola*), nematode disease of coconuts (*Aphelenchus cocophilus*), etc.

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BOTKIN, JEREMIAH DUNHAM. Clergyman and former member of Congress, died at Liberal, Kansas, December 29. He was born in Logan County, Ill. April 24, 1849, and ordained to the Methodist Episcopal ministry. He was presiding elder 1886-92. He was a republican at first but became the prohibition candidate for governor in Kansas in 1888 and afterwards became a Populist. He was a member of the 55th Congress. In 1913-15 he was warden of the State Penitentiary at Lansing, Kansas.

BOURGET, HENRY. See NECROLOGY.

BOURQUELOT, EMILE. See NECROLOGY.

BOUTROUX, EMILE. French philosophical writer died in Paris, November 22. For many years he had been the head of the institution known as the Thiers Foundation. He was born at Montrouge in 1845. His philosophical work brought him the position of professor at the University of Paris and in 1912 he was elected to the French Academy. His writings have been widely read throughout the world and are distinguished for clarity of expression as well as for their point of view. He was a teacher in philosophy of M. Bergson and a friend of William James. In the latter part of his life he served as president

of the Institute. During the war teaching at the Thiers Foundation ceased and the building was converted into a hospital for wounded officers. Among his writings may be mentioned the following: *De la contingence des lois de la nature*, which contains a profound criticism of the doctrine of necessity (1874; 6th ed., 1907); *De l'idée de loi naturelle dans la science et la philosophie contemporaines* (1895; Eng. trans., 1911); *Questions de morale et d'éducation* (1895; 4th ed., 1905), Eng. trans. by Fred. Rothwell, as *Education and Ethics* (1913); *Pascal* (1900; 4th ed., 1907; Eng. trans., 1902); *William James* (1911, 2nd ed., 1912, Eng. trans., London, 1912); *Henri Poincaré* (1913).

BOWDITCH, CHARLES PICKERING. Antiquarian and trustee or director of archaeological and other institutions, died, June 1. He was born at Boston, Mass., Dec. 30, 1842; graduated at Harvard, 1863, and was an officer of important manufacturing and commercial institutions in Massachusetts. He served during the Civil War, becoming captain of the Fifth Massachusetts Volunteer Cavalry in 1864. He was a member of many scientific and learned societies in the State and elsewhere, including well-known associations of archaeology, ethnology, history, natural history, geography, etc.

BOWDOIN COLLEGE. An institution of the higher learning at Brunswick, Me.; founded in 1794. The enrollment for the fall of 1921 was 458, and there were 34 members of the faculty, of whom 3 were added in the course of the year. The productive funds amounted to \$2,683,367 and the income to about \$200,000. The college library contained 125,000 volumes. There was a marked decrease in the number of students taking the more humanistic courses and a larger number in Chemistry and Economics. About \$250,000 had been raised toward additional endowment funds of \$600,000. Bowdoin Medical School discontinued during the year. President, Kenneth Charles Morton Sills.

BOWEN, WILLIAM ABRAHAM. Editor and publisher, died, April 15. He was born at Bagdad, Fla., April 14, 1856; studied at the Southwestern University of Texas; owned and edited the *Advance Guard* at Decatur, Texas (1873-74); founded the *Montague News* (1874); and was for five years political editor of the *San Antonio Daily Express* and from 1886 to 1890 was on the editorial staff of the *Chicago Times*. He subsequently served on the staff of various papers in Texas; and in 1908 he founded the Arlington Printing Company, of which he was president. He was editor and owner of the *Farmer's Fireside Bulletin* and the *Arlington Journal*. He wrote: *Chained Lightning* (1883); *Why Two Methodist Episcopal Churches in the United States?* (1901); *Uncle Zeke's Speculation* (1910).

BOWLING. The twenty-first annual tournament of the American Bowling Congress was held at Buffalo, N. Y., in March. Fred Smith of Detroit won the individual championship with a score of 702. F. Snyder of Erie, Pa., was second with 686. The other winners were: Doubles, O. Kallusch and A. Schieman, Rochester, N. Y., 1314; five-man team, The Saunders, Toronto, Canada, 3066.

BOXING. The battle between Jack Dempsey of the United States and Georges Carpentier of France for the heavyweight championship of the world undoubtedly attracted more widespread

interest than any other sporting event of 1921. The contest took place in an open-air arena at Jersey City on July 2 and drew a throng of wildly-excited fans to the number of 80,000. The receipts of the bout amounted to the huge sum of \$1,552,422, setting a new record in this regard. The battle itself was replete with thrills despite its brevity, the sympathies of a vast majority of the spectators being with the Frenchman. The first real "action" came in the second round when Carpentier landed squarely on Dempsey's jaw, staggering the American for a few seconds. But the Frenchman was unable to follow up his advantage and soon the superior weight and condition of Dempsey began to tell. The end occurred in the fourth round when Carpentier went down for the count.

The bantamweights proved the most popular class, the championship changing hands twice during the year. Joe Lynch first captured the title from Pete Herman only to lose it again to the same boxer who in turn was forced to bow before Johnny Buff, the present champion. Benny Leonard had no difficulty in successfully defending his lightweight laurels and barring Lew Tendler. There seems to be no one capable of displacing the champion. Johnny Wilson retained his middleweight title but failed to make an impressive showing in any of his bouts of the year. Johnny Kilbane, the featherweight champion, met no opponents of sufficient skill to jeopardize his standing.

The championships of the Amateur Athletic Union were held at Boston in April, the results of the final bouts being: 108-pound, John Hamon, Pittsburg, defeated Willie O'Connell, New York, 3 rounds; 115-pound, George Daley, New York, defeated Pascal Colletti, New Orleans, 3 rounds; 125-pound, Dan Gartin, Philadelphia, defeated Ray Rodgers, Pittsburg, 3 rounds; 135-pound, Ben Ponteau, New York, defeated Edward Crozier, New York, 3 rounds; 145-pound, Charles Jenkissen, Los Angeles, defeated Henry C. Bohlin, Brockton, 2 rounds; 158-pound, Sam Lagonia, New York, defeated B. Feeney, New York, 4 rounds; 175-pound, Magnus Larson, New York, won by default from Roggo Milane, Quincy; heavyweight, Gordon Munce, New York, defeated James Flavin, Boston, 2 rounds.

BOY SCOUTS OF AMERICA. A movement similar to the Boy Scout Movement in Great Britain, founded by Sir Baden Powell. The organization was established under the title of Boy Scouts of America in February, 1910, and incorporated by Act of Congress in June, 1916. Membership at close of 1921 numbered 403,156 scouts and 120,430 scout leaders, a number greater than the combined scout membership in all other countries of the world according to latest report of the International Scout Bureau at London. The governing body of the organization is known as the National Council. Wherever practicable local councils are organized throughout the country to supervise the scouting activities in a given community or district. In 1921 there were 611 such local councils in operation, 416 of these being what is known as First Class Councils, that is, councils supporting paid executives and maintaining permanent local headquarters. The entire United States is also divided into 12 so-called regional scout districts, each including several States and each under the

supervision of an official appointed by the National Council, known as a Regional Scout Executive.

Scouts are organized into Troops (maximum membership 32 boys) each troop in turn being made up of Patrols, of eight boys each, each patrol under the direction of a boy leader. Every troop is under the charge of a Scoutmaster, who holds a commission from the National Council and must be an adult American citizen of proved fitness for boy leadership. The Scoutmaster may have one or more assistants who must be at least 18 years of age and are preferably young men who have themselves come up through the Scout ranks. Twelve years is the minimum age for a scout. There is no upward age limit. Older boys find plenty to interest them in advanced and specialized scout activities and not infrequently develop naturally into scout instructors and leaders.

Troops are usually formed in connection with churches, schools, clubs, or other institutions, though in some cases a group of representative citizens interested in boy welfare makes itself responsible. Each troop is under the direct sponsorship of three or more adults known as a troop committee, who selects the Scoutmaster and are responsible for the proper execution of the scout programme within the troop.

The movement is non-sectarian, non-military, and non-political. It is founded on a platform broad enough to meet the needs and interests not alone of one class or type of boy in any one locality, but of all boys everywhere. Its underlying objectives are character building and citizenship training, the "making of real men out of real boys." The Scout Motto is "Be Prepared." The purpose of the organization, as stated in the National Constitution is "to promote, through organization and cooperation with other agencies, the ability of boys to do things for themselves and others, to train them in scoutcraft, and to teach them patriotism, courage, self-reliance, and kindred virtues, using the methods which are now in common use by the Boy Scouts, by placing emphasis upon the Scout Oath and Law for character development, citizenship training, and physical fitness." The oath taken by the scout requires him upon his honor to do his duty to God and his country, and to obey the scout law; to help other people at all times; and to keep himself physically strong, mentally awake, and morally straight. The Scout Law enjoins the members to trustworthiness, loyalty, cleanliness, helpfulness, courage, courtesy, etc., and particularly to the fundamental scout obligation of the daily Good Turn.

The scout programme is regarded generally as the best system and recreation education for boys yet devised. Its activities include swimming, hiking, camping, first aid, signaling, nature study, knot tying, bridge building, etc. The scout progresses successively through the Tenderfoot, Second, and First Class ranks, each of which has certain definite and increasingly difficult requirements, after which, the whole field of Merit Badge subjects is open to him, ranging from aviation, to apiary, from music to masonry, 67 subjects in all. Qualifying in a certain number of these, a scout may achieve Life, Star, or Eagle rank, the latter rank the highest in Scouting standing for proficiency in at least twenty-one

Merit Badge subjects. In 1921 there were 110,836 Merit Badges awarded; 2667 qualified as Life Scouts, 2589 as Star Scouts, and 1306 as Eagle Scouts. Seascouting is a branch of regular scouting open also to older scouts and proving in the few years since its establishment, both popular and profitable.

During the war scouts did notable service in the sale of Liberty Bonds and War Saving Stamps, locating black walnut timber, collecting peach pits, and operating war gardens at government request, as well as serving the Red Cross, War Community Service, American Library Association, Salvation Army, etc. Since the war their community service has been varied and important. They have coöperated with Forestry Departments in fighting and preventing forest fires, helped conserve wild life, planted trees, conducted clean-up and safety-first campaigns, acted as traffic aides and firemen's aides, guarded dangerous crossings, saved hundreds of lives by their knowledge of first aid and emergency service, and performed millions of individual and troop Good Turns. During the year the National Court of Honor awarded for conspicuous acts of courage and efficiency in the saving of life 3 gold medals, 64 silver medals, and 80 bronze medals. Thirty letters of commendation were written.

The Scouts participated in the ceremony for the Unknown Dead and the Disarmament Conference in Washington. Hon. Warren G. Harding is Honorary President; Honorary Vice-Presidents are Woodrow Wilson, William H. Taft, Daniel Carter Beard, and William G. McAdoo. The active officers are as follows: Colin H. Livingstone of Washington, D. C., president; James E. West, Flushing, N. Y., Chief Scout Executive; Mortimer L. Schiff, New York, N. Y., vice-president; Milton A. McRae, Detroit, Mich., vice-president; Harold F. McCormick, Chicago, Ill., vice-president; Benjamin L. Dulaney, Bristol, Tenn., vice-president; Arthur Letts, Los Angeles, Calif., vice-president; and George D. Pratt, New York, treasurer. The National Headquarters of the organization are at 200 Fifth Avenue, New York City.

BRAIN, Sir F. W. T. See NECROLOGY.

BRANDT, MARIANNE (MARIE BISCHOF). German operatic singer, died at Vienna in July. She was born in Vienna in 1842 and studied at the Conservatory there. She was associated with the Royal Opera at Berlin from 1868 to 1886, and in the latter year went to New York where she sang at the Metropolitan Opera House for several seasons in contralto rôles under Seidl. Besides an exceptionally rich contralto voice she possessed unusual talent as an actress and in her prime was one of the chief German contraltos. She was especially successful in Wagnerian parts. After 1890 she retired from the stage and taught singing at Vienna.

BRANN, HENRY ATHANASIUS. Roman Catholic priest, died in New York City, December 28. He was born at Parkstown, Ireland, Aug. 15, 1838; came to the United States at the age of twelve, and was educated at Catholic colleges at Wilmington, Del., and New York City; and studied for the priesthood in Paris and at the American College in Rome, graduating at the last-named institution in 1862,—its first alumnus. On returning to the United States he was made a

professor at Seton Hall and vice-president of the College. He was director of the Seminary at Wheeling, W. Va., from 1868 to 1870; and was for ten years pastor at Kingsbridge and Fort Washington, New York City. From 1890 to the time of his death he was rector of St. Agnes in New York City. For thirty years he was active in political affairs and matters of public interest, and was well known not only as a preacher but as a writer and lecturer. He was an ardent supporter of the movement for Irish Independence.

BRANTING, HJALMAR. Swedish Socialist, recipient of the Nobel Peace Prize in 1921. He was born in 1860, and at an early age went into journalism and acquired wide influence as editor of a Socialist newspaper, the *Social Democrat* of Stockholm. In March, 1920, he became prime minister, being the first Socialist to hold that office, and his ministry lasted until December, 1920. After the elections of 1921 when the Socialists secured a majority, he again formed a cabinet, October 11, and was still prime minister when the prize was awarded to him. He was a strong supporter of peace along the lines of the Wilson programme at the Peace Conference, and he was prominent in the various meetings of the Socialists and in discussions of international policy during and after the war.

BRAUN, MARCUS. See NECROLOGY.

BRAZIL, UNITED STATES OF. A federal republic of South America, the largest country on the continent. Capital and largest city, Rio de Janeiro.

AREA AND POPULATION. The area is estimated at from 3,275,510 square miles to 3,280,900 square miles, which is divided into twenty states and one territory. The population according to the census of 1900 was 17,318,556, and according to preliminary figures of the census of 1920, 30,645,296. The density is given at about 9.3 per square mile. The population includes about 600,000 native Indians who are found in the Amazon area. Rio de Janeiro in 1913 had a population of 975,818 and in 1920 of 1,157,873; São Paulo, 450,000 in 1913 and 504,300 in 1919. Other cities with their populations as estimated in 1913 are: Bahia, 348,130; Pernambuco, 216,484; Belem, 275,167; Porto Alegre, 150,343. From 1820 to 1919 the immigration amounted to 3,576,275 of which nearly one-third entered between 1908 and 1919. The leading elements have been in their order: Portuguese, Spaniards, Italians, and Germans. The number of immigrants that entered Brazil during 1920 was 71,026, according to official figures; 33,883 of this number came from Portugal, 10,005 from Italy, 9136 from Spain, 4853 from Turkey, and 4120 from Germany. In 1921 the government was continuing its policy of encouraging immigration with a view to agricultural development and a measure was before Congress for the purpose of promoting plans among the several states for colonization and the cultivation of idle lands. Among the advantages proposed to prospective colonists were free board and rent for a period of eight days and the advance of a small sum for the purchase of agricultural tools and free transportation.

EDUCATION. Primary education is free but not compulsory. In 1914 there were 12,744 primary schools with 700,120 pupils and 20,590 teachers; and 327 secondary schools with 30,258

pupils; and 151 professional schools with 19,294 pupils. For higher education there is the University of Rio de Janeiro founded Sept. 17, 1920. There are also 25 faculties which confer degrees; besides various military, engineering, commercial, industrial, normal, fine arts, and other special or technical institutions.

PRODUCTION. The chief occupation is agriculture, though only a small part of the country has been brought under cultivation. The chief product and by far the most important article commercially is coffee. The single state of São Paulo supplies four-fifths of the world's coffee. The average annual production of coffee has been placed at about 12,000,000 sacks, a sack weighing 132 pounds. In 1920-21 the production was estimated at 7,143,000 sacks, and for 1921-22 at 7,104,000 sacks. Next to coffee in importance are: Rubber, sugar, tobacco, mate, cotton, timber, cocoa, and nuts. Brazil furnishes about one-half the supply of India-rubber which is grown chiefly in the forests of the Amazon and the districts of Para, Ceara, and Manaus. The rubber crop in 1917 was 41,500 tons; the cotton production in 1919 was estimated at 119,500 tons; the sugar output, 1920-21 at 612,899 metric tons, and, 1921-22, at 526,116 metric tons; and the average tobacco output at 50,000,000 kilos. Mineral resources include: Coal, gold, diamonds, petroleum, manganese, monazite, mica, talc, copper ore, platinum, etc. The chief manufacturing industry is cotton-weaving which has greatly developed of late years. In 1918 there were 202 cotton factories with 78,186 workmen. Other important industries are silk which has latterly been developing, tobacco manufacturing, and brewing.

COMMERCE. The following official figures give a comparative study of the development of Brazil's foreign trade. Amounts are given in milreis, the exchange value of which averaged about \$0.24, United States currency, in 1916 \$0.25 in 1918, and \$0.25 in 1920.

Countries of origin	1916 Milreis	1918 Milreis	1920 Milreis
United States.....	317,661,000	355,932,000	880,237,000
Great Britain.....	165,281,000	201,878,000	453,049,000
Argentina.....	114,019,000	187,899,000	157,214,000
France.....	42,158,000	47,348,000	117,381,000
Germany.....	359,000	.....	104,862,000
Italy.....	28,303,000	21,054,000	50,380,000
Portugal.....	37,704,000	37,963,000	43,212,000
Belgium.....	1,157,000	.....	38,899,000
Spain.....	9,422,000	17,486,000	28,499,000
Uruguay.....	12,061,000	41,266,000	27,252,000
Sweden.....	10,525,000	9,398,000	26,104,000
Switzerland.....	10,290,000	7,624,000	25,395,000
Mexico.....	5,232,000	6,439,000	21,740,000
Norway.....	8,268,000	4,243,000	21,706,000
Newfoundland.....	13,980,000	23,709,000	20,310,000
India.....	13,150,000	12,349,000	18,823,000
Finland.....	.....	.....	11,501,000
Canada.....	5,504,000	4,102,000	11,360,000
Holland.....	4,831,000	1,175,000	10,642,000
Japan.....	467,000	6,168,000	10,687,000
Total importation	810,759,000	989,404,000	2,090,633,000

NOTE.—Beginning with 1918, the importations are according to countries of consignments.

It can be seen from these figures that the increase of imports from the United States during the period from 1916 to 1920 was 177 per cent, while the increases for Great Britain and Japan for the same period amounted to 274 per cent and 2280 per cent, respectively. In the two years

since the war Germany has enjoyed an increase of 3268 per cent. The following table shows the distribution of these imports by states or customs districts:

States	1916 Milreis	1918 Milreis	1920 Milreis
Rio de Janeiro.....	358,009,000	460,426,000	966,795,000
Sao Paulo.....	215,572,000	257,700,000	613,457,000
Rio Grande do Sul.....	51,711,000	79,558,000	144,189,000
Pernambuco.....	49,493,000	70,568,000	138,431,000
Bahia.....	38,309,000	46,748,000	84,247,000
Alagoas.....	8,880,000	8,685,000	20,084,000
Paraná.....	8,170,000	7,178,000	17,672,000
Pará.....	36,272,000	26,190,000	36,422,000
Ceará.....	5,692,000	6,484,000	14,473,000
Santa Catharina.....	6,286,000	4,151,000	13,336,000
Amazonas.....	18,096,000	9,017,000	11,586,000
Maranhão.....	5,388,000	5,715,000	11,303,000
Parahyba.....	2,738,000	1,839,000	6,423,000
Rio Grande do Norte.....	1,348,000	632,000	3,099,000
Matto Grosso.....	2,791,000	3,048,000	2,962,000
Sergipe.....	543,000	251,000	2,385,000
Piauí.....	797,000	807,000	1,913,000
Espírito Santo.....	664,000	404,000	1,856,000
Acre Territory.....	3000		
Total imports.....	810,759,000	989,404,000	2,090,633,000

The destinations of Brazilian exports for the periods under consideration were as follows:

Destinations	1916 Milreis	1918 Milreis	1920 Milreis
United States.....	520,499,000	393,896,000	725,189,000
France.....	178,654,000	102,416,000	200,458,000
Great Britain.....	131,116,000	114,802,000	140,024,000
Italy.....	68,102,000	120,998,000	123,122,000
Argentina.....	67,993,000	172,753,000	120,117,000
Germany.....			112,301,000
Holland.....	33,763,000		52,422,000
Belgium.....		5,760,000	47,794,000
Portugal.....	6,261,000	10,402,000	35,628,000
Sweden.....	31,276,000	5,545,000	30,208,000
Denmark.....	8,468,000	1,790,000	16,215,000
Spain.....	8,993,000	25,421,000	11,538,000
Cape Colony.....	8,789,000	8,904,000	13,689,000
Uruguay.....	54,423,000	118,505,000	77,143,000
Total exportation.....	1,136,888,000	1,137,100,000	1,752,411,000

The origin of these exports is shown below:

States of origin	1916 Milreis	1918 Milreis	1920 Milreis
Sao Paulo.....	489,632,000	371,446,000	860,476,000
Rio de Janeiro.....	196,676,000	251,490,000	261,518,000
Bahia.....	106,468,000	111,253,000	145,403,000
Rio Grande do Sul.....	49,278,000	122,195,000	115,911,000
Pernambuco.....	25,566,000	81,176,000	93,950,000
Pará.....	79,303,000	60,097,000	48,959,000
Paraná.....	35,970,000	36,340,000	44,896,000
Amazonas.....	77,706,000	28,568,000	39,306,000
Ceará.....	18,509,000	23,416,000	38,542,000
Espírito Santo.....	22,864,000	13,404,000	32,757,000
Maranhão.....	11,830,000	12,826,000	21,530,000
Santa Catharina.....	6,420,000	12,185,000	17,440,000
Alagoas.....	3,948,000	4,951,000	13,561,000
Parahyba.....	3,795,000	287,000	8,281,000
Matto Grosso.....	7,618,000	7,443,000	6,199,000
Rio Grande do Norte.....	1,305,000	23,000	3,682,000
Total.....	1,136,888,000	1,137,100,000	1,752,411,000

In the sugar trade the United States has latterly taken first place among the purchasers. In 1917-18 Argentina had by far the largest share. In 1919 the United States rose to the first place, and in 1920 took double the amount of Great Britain which stood next in order. In the latter year the United States imported about 58,000 metric tons, the total exportation from Brazil being 109,000 metric tons.

The chief countries of destination for the

coffee exports in 1920 were as follows: United States, 6,246,000 bags; France, 1,539,000 bags; Italy, 1,002,000 bags; and the following countries in their order: Germany, Sweden, the Netherlands, Belgium, Argentina, Denmark.

Statistics published in the autumn showed imports for the first half of 1921 at £38,485,000 as compared with £72,763,000 in the last six months of 1920. An attempt to deal with the depression of exchange took the form of an emergency bill. Imported merchandise was relieved of storage charges at the custom houses up to October 31; the government was endeavoring to secure from the railway companies a reduction of freight rates; the selling of products manufactured in Brazil as imported goods was prohibited under a severe penalty.

FINANCE. The real is the unit of currency but the common denomination is milreis consisting of a thousand reis. A canto equals a thousand milreis. In 1921 the revenue was estimated at 102,005,000 gold milreis and 624,761,000 paper milreis; the expenditure at 75,680,000 gold milreis and 711,640,000 paper milreis. The budget bill presented to the budget committee of the Brazilian Chamber of Deputies estimates the revenue for 1922 at 98,486,320 gold milreis and 660,363,000 paper milreis and the expenditures at 75,089,605 gold milreis and 734,753,244 paper milreis. A comparison of the total amount of the revenue and expenditure shows a balance of 23,396,715 gold milreis and a deficit of 74,390,244 paper milreis. On August 30 the second half of the issue of \$50,000,000 in twenty-year eight per cent gold bonds of Brazil was offered for sale in New York and was almost immediately over-subscribed.

RAILWAYS. Of the total mileage, 18,708, open for traffic March 31, 1919, 9455 miles belonged to the Central government; 6231 miles to private owners; and 1527 to the states, the chief owners among the states being São Paulo and Minas Geraes. During the year a project was set on foot for a third railway in the state of Matto Grosso, which would act for the future development of this rich section of Brazil. One of the existing railway lines connected the two navigable stretches of the Madeira river, while the other, crossed the southern part of the state, connecting the Paraná and Paraguay rivers. The proposed line which was considered even more important in its possibilities was to commence at the Agua Clara station on the Northwest of Brazil Railway and, with an extension of approximately 620 miles, reach Cuyaba, after having passed by Bahu, Santa Rita do Araguaia, and the important village of Rondonopolis.

It was also planned that this railway should form the trunk line of a system of future railways along the Madeira river and other important tributaries of the Amazon.

During the year the American electric freight locomotives shipped to the Paulista Railway of Brazil was put in service in that country between Jundiáhy and Louveira. These locomotives haul trains of from 43 to 45 units over grades as steep as 1.5 per cent. The so-called "unit car" of 10 tons gross weight and the term referred to the old wooden car of 30 years previous. Modern cars were said to be two, three, or four units according to their size and load. Thus a train of 45 units represented 450 tons weight and was approximately 675 ft. long.

Under former steam operation such trains could not be carried over a 1.5 per cent grade at a speed greater than about nine miles an hour. The electric locomotives negotiated such grades at 29 miles an hour.

Another important railway project discussed during the year had as its aim to connect Brazil and Paraguay making the latter country independent of Argentina for outlet to the Atlantic. In addition the new railway would open the Paraguayan market to the Paulista manufacturing interests of Brazil and create a stronger current of trade between that country and the north-eastern provinces of Argentina. A bill was introduced in the Brazilian Congress granting to the state government of either São Paulo or Paraná a concession to build a line from Santa Cruz to Rio Pardo, the terminus of one of the lines of the Sorocabana railway system, to some point on the Rio Paraná between the Guayra Falls and the mouth of the Iguassu, and also to build another connection from Guarapuva to some point on the main line to be constructed, thus offering another outlet by way of Curytiba to the Atlantic at Paranaguá. This concession would carry with it a subsidy of \$44,000 a mile and if neither state cared to take advantage of the plan it would be offered to the highest bidder, and failing offers by private interests, the government would construct the line.

A connection thus effected between São Paulo and Corrientes would offer an economy of 684 miles over the existing roundabout route by Buenos Aires, and would soon correct the unfavorable trade balance suffered by Brazil in its commerce with Argentina. There are several different schemes being advanced by the various promoters, and it was considered possible that the bill might be altered before it was finally enacted.

SHIPPING. The merchant shipping of Brazil comprises 588 steamships of 433,000 tons and 55 sailing vessels of 17,920. In that year 23,126 vessels entered with a tonnage of 17,954,320 and 23,170 cleared with a tonnage of 17,946,010.

POSTS AND TELEGRAPHS. In 1920 the post offices numbered 3,696. In 1919 there were 54,536 miles of telegraph line.

GOVERNMENT. Executive power is vested in the President, elected directly by the people for four years and ineligible for the succeeding term. Along with him the Vice-President is elected in the same manner. Legislative authority is vested in the National Congress, which consists of the Senate and the Chamber of Deputies. The Senate has 63 members elected by direct vote for three years and the Chamber of Deputies, 212 members elected by direct vote for three years on the basis of proportional representation. The President in 1921 was Dr. Epitacio de Silva Pessoa elected for the term 1918-22 and the Vice-President, Francesco Alvaro Bueno de Paiva.

Measures toward improving relations between Brazil and Paraguay were being taken in the latter part of the year. Conferences were held between the secretaries of state of both countries and plans were under discussion for the hastening of the construction of the railway from Santos to Asuncion which would supply the capital of Paraguay with a direct rail route to the Atlantic; also a measure for wireless communication between Rio de Janeiro and Asuncion. See **NAVAL PROGRESS.**

BREAD. See **FOOD AND NUTRITION.**

BRECHTSEN, A. L. See **NECROLOGY.**

BREEDING. See **LIVE STOCK.**

BREEDING PLANTS. See **BOTANY.**

BREMER, ALEXANDER. American violinist, died in New York, January 5. He was born in Copenhagen, Jan. 15, 1850, and came to the United States in 1867. For more than twenty years he played in some of the larger symphony orchestras, and for twelve years served as president of the Musical Mutual Protective Union.

BRETHREN, CHURCH OF THE. A religious denomination, commonly known as "Dunkers"; organized in 1708 at Schwarzenau, Germany. It comprised in 1921 a total of 1014 churches with total membership of 108,936. There are 3551 ministers. Foreign mission work is carried on in Denmark, Sweden, China, and India, with a mission in Africa in contemplation for 1923. Workers in foreign fields in 1921 numbered 120. Of these, 13 are at present on furlough, 7 were appointed in 1920, and 5 in 1921. The work of home missions is carried on through the medium of 48 district boards. Receipts for missionary work for the year amounted to \$295,384.52; for other relief work \$142,238.95; 1921 marked the second year of the Five-Year Movement in the church. The programme consists of general expansion in membership, missionary, and educational fields. The denomination maintains ten colleges with total enrollment in 1921 of 2397 students. The enrollment of the Sunday Schools was 107,808. There are more than 1200 schools and twelve thousand officers and teachers. The headquarters of the various church boards are located in Elgin, Ill., including the General Mission Board, General Educational Board, General Sunday School Board, General Christian Workers Board, Temperance Board, General Relief Committee, and the Peace Committee. The publishing house is also at Elgin, Ill. The official organ of the denomination is the *Gospel Messenger*.

BRETON LANGUAGE. See **PHILOLOGY, MODERN.**

BRIAND, ARISTIDE. Prime Minister of France, assumed office January 16. He was born in 1863 and after studying law devoted himself to journalism and politics. During the early part of his political career he was known as a Socialist of radical tendencies and accused of revolutionary aims, as well as of violent anti-clericalism. He was elected to the Chamber in 1902 as a Socialist-Radical. His first important appointment was that of Minister of Education in 1906 and as such it was his duty to carry into effect the law of separation of church and state. To the surprise of his critics he showed great tact and moderation in the execution of this measure, with the result that little friction ensued. On July 23, 1909, he succeeded M. Clemenceau as Prime Minister and held office until February, 1911. It was during this administration that he dealt in summary fashion with the great railway strike which threatened to bring the whole industrial life of the country to a standstill. He resorted to the simple expedient of calling to the colors the railwaymen as reservists. The other cabinets of which he was successively Prime Minister down to that of 1921, were: Jan. 21, 1913, to March, 1913, and Oct. 29, 1915, to Dec. 12, 1916. In politics Briand has always been regarded as one of the strong men of

France and there has been a popular acceptance of his own description of himself as a "tenacious Breton." He has also won great renown for his eloquence as a public speaker. The policy as announced by the new Prime Minister involved the following points: Disarmament of Germany and the execution of the Treaty; payment by Germany of her just dues to France; execution of those aims in close union with England and the other Allies; nonintercourse with the Russian Soviet government but abandonment of aggressive Anti-Bolshevist campaigns; the maintenance of a strong army but with a reduced period of military service; return to normal conditions of finance, agriculture, and industry; reconstruction of the devastated regions along the lines of decentralization; prompt relief of unemployment; recognition of war victims as first creditors of the nation; in general, an appeal to the stable majority of the nation as against the extremists on either side.

BRICKS. The average price per unit in all kinds of ware except vitrified brick increased considerably more in 1920 than in 1919. Common brick increased in price 35 per cent; face brick, 34 per cent; hollow building tile, 47 per cent; vitrified brick or block, 18 per cent; and fire brick, 22 per cent. The average increase in price in all these wares from 1916 to 1920 was 124 per cent. The structural clay products as a whole (mainly brick and tile) produced in 1920 were valued at \$147,640,000, or 57 per cent of the total of all brick and tile products, as compared with \$102,850,000 in 1919 and \$66,209,300 in 1918. Engineering products (vitrified brick, sewerpipe, and drain tile) rose in value from \$37,800,000 in 1919 to \$47,340,000 in 1920, or 18 per cent of the total brick and tile products. Refractories (fire brick and stove lining) increased in value from \$36,900,000 in 1919 to \$53,640,000, or 21 per cent of the total. Miscellaneous products constituted 4 per cent of the total value in 1920. Common brick was the leading product in quantity and value in 1920, as it had always been except in 1918, when, on account of war restrictions and the unusual demand for fire brick, common brick was relegated to second place in value. The output in 1920 was 4,709,000,000 brick, an increase of 156,333,000 brick over the output in 1919. Notwithstanding this gain the output of 1920 was the smallest recorded by the Survey except the output of 1919 and that of 1918 and was less than one-half as large as the maximum, which was in 1906. The value of this product, \$81,330,000, was the highest recorded and represented an increase of \$23,110,000 over 1919. This was the largest gain recorded by a clay product in 1920. The average price per thousand in 1920, \$17.27, was also the highest recorded. In 1919 the average price was \$12.79.

BRIDGES. In 1921 there was active discussion and preparation of plans for long spans and important bridges generally, as well as a certain amount of minor construction. At New York, Philadelphia, Detroit, and elsewhere large projects were discussed and furthered. These aroused the interest of engineers as well as the general public and their discussion was followed with more than ordinary concern. An important discussion of the year was presented before the Philadelphia Section of the American Society of Civil Engineers by Gustav Lindenthal on Nov. 7, 1921, in which he not only referred

to the Delaware River bridge, mentioned below, but discussed long-span bridge design in general, having been a leading worker in this field in American bridge work. This paper slightly condensed was published in *Engineering-News-Record* (New York), Nov. 24, 1921, p. 861, vol. 87, and contained a remarkable outline of long-span bridge fundamentals worthy of consideration in connection with Mr. Lindenthal's own designs as well as others under course of development.

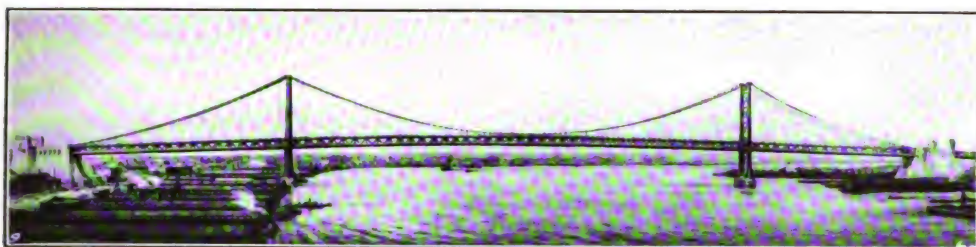
DELAWARE RIVER BRIDGE. The Delaware River Bridge Commission, composed of the interstate bridge commissions of Pennsylvania and New Jersey, on June 23, 1921, approved the recommendations made by the board of engineers appointed in October, 1920, and consisting of Ralph Modjeski, chairman, George S. Webster, and Laurence A. Ball. The commission adopted the Franklin Square location, as against the Spring Garden Street and Washington Square locations advocated by various interests. The first named location, it stated, was the most suitable to "convey traffic to its desired destination with economy and directness." The commission also approved the adoption of the suspension bridge design, and provided for the organization of the Engineering Staff for the immediate preparation of contract plans.

The city council of Philadelphia later made the necessary appropriation of money for construction, which was necessary to legalize further steps in construction. The States Pennsylvania and New Jersey also had appropriated sums to cover their contributions to the cost of the bridge, the amount required from the State of New Jersey being estimated at \$2,500,000.

The design of the suspension bridge as recommended provided for a central span of 1750 feet, or 150 feet longer than the longest existing suspension bridge. The distance from anchorage to anchorage was 3536 feet and the total length of the bridge structure including approaches was 8126 feet. The central span was at a height of 135 feet above high water for a distance of 800 feet. The suspension type was selected after a careful consideration of both cantilever and arch types, and the governing considerations in its adoption were a comparison of tests, greater ease and safety of erection, and a shorter time required for construction.

Inasmuch as there was a distance of 1690 ft. between pierhead lines or 1750 ft. between pier centres at the Franklin Square location, and arch construction was not deemed feasible on account of the depth of rock, only suspension and cantilever structures were considered. The suspension bridge was very much lighter, and was considered to involve less risk in construction, as well as to be adapted to subdivision of contracts. Then also it would require less time to build, and would be cheaper in maintenance on account of having less metal exposed. Furthermore detail designs and comparative cost estimates showed a difference of \$1,986,000 in favor of the suspension bridge. For the cantilever bridge the computed weight of metal was 47,000 tons as compared with 33,000 tons for the suspension bridge, though for the latter more costly material and more expensive anchorages were required.

The engineers estimated the total cost of the suspension bridge design at the site chosen as



PROFILE VIEW OF BRIDGE



APPROACHES TO THE NEW BRIDGE
PHILADELPHIA-CAMDEN BRIDGE

\$22,479,000 for construction and \$6,392,000 for the acquiring of the necessary real estate. In the construction cost were included \$13,355,000 for the main bridge, \$6,468,000 for the approaches, plazas, sewer and grade revision, and \$2,656,000 for engineering administration and contingencies. It was the belief of the engineering board that the bridge could be completed by July 4, 1928, the 150th anniversary of the Declaration of Independence.

The Delaware bridge of course was for vehicular traffic and after due consideration of the volume and density of such traffic it was concluded that six vehicular lanes should be provided on the bridge, each of $9\frac{1}{2}$ ft., making a total width between curbs of 57 ft. Two car tracks in each direction were also provided, outside of the 57-ft. roadway; and two 10-ft. pedestrian ways were considered necessary, the latter being placed above on the upper lateral bracing.

The two towers were to be solid built steel posts bearing the cables firmly attached to their saddles (instead of having movable saddles on rollers) following the practice in the Manhattan Bridge across the East river at New York. The cross-section of each post increases from 7x12 ft. at the top to 7x40 ft. at the base.

The towers support two main cables spaced 89 feet from each other, as such an arrangement was considered preferable to four cables. Consequently there were required 30-in. cables, which represent a large increase over the $15\frac{3}{4}$ -in. cables of the Brooklyn bridge, or even the 18 $\frac{5}{8}$ -in. and 20 $\frac{1}{4}$ -in. cables of the Williamsburgh and Manhattan bridges. Each cable was to be made up of 16,500 parallel wires, 0.192 in. diameter.

The hangers are spaced about 20 ft., and consist each of four 2 $\frac{5}{8}$ -in. galvanized wire ropes attached to a cast-steel saddle. A short panel length was considered desirable for the stiffening trusses (20.5 ft for main span, 20.75 ft. for side spans). The trusses were of simple triangular web system, were continuous across the span, and were supported at the towers by stiff hangers.

There was a simple steel floor system, including a concrete slab roadway structure with wood block paving, and open tie floors for the railway tracks. The pavement, the only inflammable material in the bridge, rests on concrete slabs.

Inasmuch as local conditions required that the anchorages be placed considerable distance back of the towers, suspended side spans were adopted, whose length was fixed at slightly less than half the main span. The sag of the cables was set at two hundred feet, as the most desirable compromise between increased cost of towers and increased stresses in stiffening trusses, cables, and anchorages.

For the main parts of the structure high-strength alloy steel was selected, and high-carbon steel wire for the cables and hangers of the suspension bridge design. In the design a unit stress of 72,000 lbs. per square inch in the cable wires was considered permissible under the emergency live loading and 60,000 lbs. under normal full loading.

The plans for the bridge received the formal approval of the Secretary of War and Chief of Engineers, U. S. Army, on Sept. 26, 1921. The plans duly carried out the conditions previously imposed when it was stated that a clearance of 135 ft. above mean high water and a span with piers outside the pierhead lines, would be acceptable.

Work straightway began in earnest, the commission starting in to begin acquisition of the property required for the approaches by condemnation. During the autumn the plans for the caissons and masonry of the two river piers of the bridge were completed and bids were called for. These piers as designed measured 70x143 ft. at the base and required for both some 62,000 cu. yd. of masonry. They were to be granite faced down to a point below low water level. The borings made at the site of the two piers showed rock at from El. —58 to El. —73 on the Philadelphia side and from El. —80 to El. —90 on the Camden side. Eleven bids for building the two main piers were received by the Joint Commission on Dec. 19. Lump-sum bids had been asked for, based on sinking the Philadelphia caisson to El. —62 and the Camden caisson to El. —86, with some excavation below cutting edge and some rock left above cutting edge. The totals ranged from \$1,669,275 to \$2,553,000, the average being \$2,138,279.

DETROIT-WINDSOR BRIDGE. During the year announcement was made of the proposed design for the eight-cable suspension bridge with span 1803 feet centre to centre of towers, to be built across the Detroit river. There was proposed a suspension bridge with unloaded backstays having two decks for railway and highway traffic respectively. The plan proposed that the highway deck carried from four cables should be built first and put in service, while later the extra cables and stiffening truss capacity required for the railway deck could be added. The bridge would have a minimum height of 110 feet at the centre of the channel and at either end there would be approach spans of 925 feet length. The towers of steel were to rise to a height of 330 feet. There would be four railway tracks on the lower deck, and two trolley tracks and two 28-foot roadways as well as two 7-foot sidewalks on the upper. The exceptionally heavy loading was duly considered and it was for this reason that eight cables were required, of course the long span also being a governing factor. Six of the eight cables were to be 21 inches in diameter and contain 7980 parallel wires, each of .192 inch diameter, while the two lower outside cables were to be of 18 inches with 6700 wires. The cables were to be continuous from anchorage to anchorage. The preliminary design was prepared by Charles E. Fowler, chief engineer, while the plans were under consideration by an advisory board of engineers. The necessary authority from Congress and the Dominion Parliament for erection of the bridge and suitable charters had been secured, so that the companies organized to promote the work were in a position to act in the near future.

PROPOSED HUDSON RIVER BRIDGE. During the year 1920 the interests concerned in the development of the project for a bridge across the Hudson river from New York City to New Jersey on designs prepared by Gustav Lindenthal and outlined in the YEAR BOOK for 1920 were active in their efforts, but comparatively little of a positive or definite nature was accomplished save in the way of further engineering and development studies and arousing increased interest in this scheme and endeavoring to correlate it with the much discussed and agitated terminal and port improvement of the City and

Port of New York. There was no question, apparently, as to the need or desirability of such a bridge, just as there was no question on the engineering side of its practicability or feasibility, but large as the subject was it was in 1921 considered rather as a part of the great unsolved question of the port and water front development of New York City and only to be considered in that connection.

SUSITNA RIVER BRIDGE, ALASKA. A bridge erected under extraordinary conditions on the United States Government Railway in Alaska was that across the Susitna river, which was completed in February, 1921. This crossing of the Susitna included in addition to a steel 504-ft. through truss channel span, two 121-ft. combination Howe-truss flanking spans and two 70-ft. combination pony Howe-truss end spans, both sets of timber, with 392 ft. of trestle at the southern approach and 28 ft. at the northern approach, making a total length of 1322 ft. It is located 150 miles north of Anchorage, the ocean port of the line, and 264 miles north of the terminus at Seward. Thus crossing presented many interesting problems both on account of the foundations and the difficulty of shipping material to the site. The solution reached was in view of the local conditions and the work represented the longest bridge in the Alaskan Government Railway.

OHIO RIVER BRIDGE AT CAIRO TO BE RECONSTRUCTED. On Nov. 2, 1921, the Secretary of War granted to the Illinois Central Railroad authority for the replacement of the single-track bridge of the Illinois Central R. R. over the Ohio river at Cairo, Ill., by a double-track bridge. The new bridge would be erected on the existing stone piers and would cost about \$8,500,000. The original bridge, built in 1887-88, consisted of two through-truss spans of 523½ ft., seven of 405 ft., and three deck-truss spans of 250 ft. In 1914-15 the superstructure was strengthened to carry the heavier loading but this was a temporary measure as greater capacity was required. The new bridge was to have the same headroom under the channel spans at high water as the older structure.

The river piers were to be increased in dimensions from 43 ft. to 52 ft. length and from 14 ft. to 17.75 ft. width at the top by rebuilding the upper portion, the work to begin at the starling or middle belt course and the increased size to be obtained by a reduction in the batter. On the Kentucky approaches there were 21 deck truss spans of 150 feet and one 106-ft deck girder span all on steel cylinder piers filled. The new plans represented a recession of the government from a previous attitude that any new construction should involve a channel span of 800 to 1000 feet for navigation inasmuch as the large tows or fleets of coal barges were no longer operated and the river conditions in 1921 did not justify the claims for such long spans as were demanded when the former request was made, the conditions were modified. On the basis of 1919-20 prices the cost was estimated at \$8,482,000, as against \$10,752,000 for a new bridge with a 700-ft. channel span.

FAIRMONT, W. VA., CONCRETE ARCH BRIDGE. Crossing the Monongahela river at Fairmont, W. Va., there was completed during the summer of 1921 a high level concrete arch bridge with three 250-foot spans. This bridge was notable in that it combined architectural treatment of consider-

able merit with certain features of design construction required by the site. There was required a channel clearance height of 50 feet on a 200-ft. width which resulted in a 250-ft. arch with a 52-ft. rise from springing line elevation 33 feet above pool level. All three piers are founded on rock. The three 250-ft. spans had two 14-ft. wide ribs spaced 14 feet apart in the clear.

COLUMBUS, OHIO, BRIDGES. During the summer of 1921 at Columbus, Ohio, there were opened to traffic three concrete arch structures built to replace bridges destroyed in the great flood of 1913. The first of these the Mound St. bridge across the Scioto river, was opened to traffic on July 2, 1921. This is a concrete arch bridge 1050 ft. long, of nine spans, which cost about \$6,000,000.

Later in the summer the Broad St. and Town St. bridges, also across the Scioto river, were opened to traffic. They carry foot, street-car and vehicle traffic. They were built by Franklin County, and cost about \$600,000 each.

JACKSONVILLE, FLORIDA. A new bridge over the St. Johns river at Jacksonville, Fla., was opened to traffic. This was a steel structure with nineteen spans, the longest of which was a 188-ft. vertical lift span. The entire bridge, including approaches, was 3800 ft. long, and cost nearly \$2,000,000.

RONDOUT CREEK SUSPENSION BRIDGE. During 1921 there was under construction by the State of New York, the Rondout Creek bridge 1100 ft. long over all with a channel span of 705 ft. This bridge was to carry the main highway along the west bank of the Hudson river, and would replace an ancient chain ferry.

Two 9-in. parallel-wire cables were the main supporting members, from which would be suspended a deck 22 feet wide formed by a reinforced-concrete slab on steel framing, designed for carrying the heaviest trunk-line highway traffic.

The bridge was estimated to cost about \$700,000.

BELL ISLE BRIDGE, DETROIT. During 1921 six of the piers for the Belle Isle bridge at Detroit were practically completed and work progressed satisfactorily, the engineers reporting very little trouble experienced in leakage through the cofferdams, and no indication of any trouble in sealing the bottom against the cofferdam walls, with 4½-ft. concrete base on top of the piles. This bridge was referred to in the YEAR BOOK for 1920.

SUSPENSION BRIDGE ACROSS THE GRAND CANYON. On May 15, 1921, there was completed and opened for travel a small but interesting suspension bridge across the Grand Canyon nearly 5000 feet below the rim at El Tovar for the use of mule trains and foot passengers. A new trail has also been made along the rock side of the bluff to reach the bridge. The bridge is a wire cable suspension bridge of approximately 500 ft. span from centre to centre of bearings, and about 420 ft. along the roadway. There are two main 7/8-in. plow-steel cables, placed approximately 10 ft. apart, anchored about 80 ft. above the floor level on the sides of the rock canyon. These cables carry the wood floor by 3/8-in. galvanized-steel cables spaced 6 ft. centre to centre, through the medium of spread iron rods 4 ft. deep. The floor of the bridge is located at a height about 13 ft. above the highest known water and 60 ft. above normal water.



G. LINDENTHAL
Architect

PROPOSED HUDSON RIVER BRIDGE

The main difficulty in construction was the transport of material to the site and the main cable was divided between two mules each carrying coils of 200 lbs and 15 men spaced at intervals of 20 feet who carried each 35 lbs. The cost of this interesting little bridge built at this all but inaccessible point was \$17,000.

HUDSON RIVER BRIDGE AT CASTLETON, N. Y. This new bridge for the New York Central and Hudson River railroad cut off line to enable through traffic to avoid the track congestion and heavy grades through Albany was put under way during the latter part of the year and work was started on building six piers for its east approach. These piers are to carry a plate-girder superstructure. While the main structure will cross the navigable channel of the Hudson by a 600-ft. span with a 400-ft. flanking span.

PROPOSED PONTOON BRIDGE ACROSS THE HUDSON RIVER. As a means of relief for the great motor traffic that congested the ferries across the Hudson river from New York City to Newburgh there was suggested and for a while actively advocated a bridge of boats from Yonkers to Alpine or between similar points on the New York and New Jersey shores. The plan involved the use of the hulls of the discarded wooden vessels of the U. S. Shipping Board and anchoring them across the river with a superstructure for traffic and a draw, lift or other device to permit the free passage of river craft. This plan was first suggested by Mayor W. A. Welch, Chief Engineer of the Interstate Park Commission, and was taken up for a while by some of these concerned in the development of the Hudson Bridge scheme. There were negotiations with the Shipping Board and tentative plans were made for the bridge deck construction, but the scheme later was abandoned. It was opposed by Hudson River Navigation interests which looked upon such a device as a serious menace to the free passage of the river. On the other hand, the scheme was approved by many motorists who had experienced difficulty and delay in making the ferry crossings.

PROPOSED SEATTLE PONTOON BRIDGE. The pontoon bridge idea was also considered at Seattle, Wash., where two local engineers, R. R. Montell and J. H. Dirkes, proposed to the county engineers of King County to build two pontoon bridges across Lake Washington in place of ferries. They also had in mind to use fifteen of the wooden vessels of the Shipping Board some of which were moored in Lake Union, and they estimated the total cost at \$235,000 if the vessels were furnished without cost. There was proposed a wood superstructure, to have 18-ft. roadways and 4-ft. sidewalks. For the 3000-ft. crossing from Seward Park to Mercer Island there would be trestle approaches and ten spans on nine pontoons, while the crossing from the east shore to Mercer Island, 1000 ft. long, would require three boats. Both bridges would require draws and would facilitate traffic which the ferries were carrying at a loss. In support of the plan it is stated that the present ferries are operating at a loss and that traffic would be facilitated.

SAN FRANCISCO HARBOR CROSSING. In many of the projects proposed for a crossing of San Francisco Harbor some form of bridge figured as well as tunnels. Naturally such a construction would present a more difficult problem than

any yet essayed in this field and it is interesting to note the conditions laid down by the War Department for the construction of a crossing across San Francisco Bay it may approve. The Chief of Engineers has announced the broad policy which must govern this construction, as follows:

1. No bridge of any kind will be approved north of Hunters Point.

2. No low bridge will be approved north of San Mateo.

3. A tunnel crossing the bay will be approved in any location provided the highest part of the structure is placed at least 50 ft. below mean low water and proper compensation is made for obstruction of cross-section as affecting tidal flow.

4. A combined bridge and tunnel will be approved at a location south of the proposed Alameda river base site, provided the tunnel is so placed as to leave the channel along the San Francisco side unobstructed to a depth of 50 ft. at mean low water for a width of one mile (the width of the unobstructed 50-ft. channel immediately outside the pierhead line may be reduced to 3000 ft.) measured from the lowest point of the pierhead line, and provided proper compensation is made for obstruction of the cross-section as affecting tidal flow.

5. Not more than one crossing will be approved at present in any location north of San Mateo.

CHICAGO BRIDGES. It was reported in 1921 that the City of Chicago maintained fifty movable highway bridges divided by types as follows: 24 trunnion bascule bridges, 12 centre bearing swing bridges, 12 rolling lift bascule bridges, one vertical lift bridge and one pontoon bridge. The city had developed and erected 22 trunnion bascule bridges, while the others were of the Strauss and Page & Schnable types. The pontoon bridge was across the Calumet river at Torrence Ave.

The latest and most important of the trunnion bascule type was the 268-ft. double-deck double-leaf bascule bridge over the Chicago river at Wells Street which was put in service for the elevated railway on December 4. This traffic was to be stopped from Saturday morning to Monday morning, but in view of the heavy Monday morning traffic it was decided to advance the time and have the bridge ready on Sunday evening. With the old bridge swung to the open position and blocked up on the rest pier, it was cut apart by torches and the members of the middle portion removed by cranes, leaving a gap into which the leaves of the bascule were lowered. Owing to the grade of the new bridge being above that of the old swing structure which it supplanted, necessitating street alterations at the south end, traffic on the lower or roadway deck was not opened until about the end of the year.

The new trunnion bascule bridge has a span of 268 ft. centre to centre of trunnions, giving a clear channel 200 ft. wide. There are two lines of trusses spaced 41 ft. centre to centre, the lower deck having a 38-ft. roadway and outside two 13-ft. walks. On the upper deck are two tracks for the elevated railway. The total weight of each leaf complete was about 2460 tons, including 1300 tons of counterweight. The old Wells Street swing bridge, 220 ft. in length, was built in 1888 as a street bridge, and was reinforced in 1896 to carry the elevated railway.

SOUTHWARK BRIDGE, LONDON. The new Southwark bridge over the Thames, at London, whose

reconstruction was discussed in the YEAR BOOK for 1920 was completed during the year. The new structure replacing what was the largest and one of the earliest cast-iron arch bridges to be built was opened formally on June 6, 1921, in the new structure. Steel arches with spans varying from 123 to 140½ feet in length clear replaced the cast-iron work. The bridge was 55 ft. wide. Sir William Arrol & Co., Glasgow, were contractors. Traffic was handled on temporary foot-bridges during the reconstruction.

SYDNEY, AUSTRALIA, BRIDGES. During the year elaborate specifications were prepared and bids invited for the construction of a cantilever bridge across Sydney harbor, Australia, from Dawes Point to Milsons Point.

The contract involved a bridge with a total length of 3816 ft. whose main span was to consist of two 500-ft. cantilever arms and a central section, 600 ft. long, suspended from the ends of the arms. This would make a total length of main span of 1600 ft. between pier centres. The height of the trusses over the main piers was to be 270 ft. and the height of the central suspended section 100 ft. As the clearance above high water level was to be 170 ft. movable spans were not required.

BIBLIOGRAPHY. Among the important contributions to bridge engineering literature brought out during the year are the following: Dr. J. A. L. Waddell published his *Economics of Bridge-work*, a sequel to his *Bridge Engineering*. The report to the British Ministry of Transport by the Advisory Committee for the Revision of the Board of Trade Requirements, 1914, in regard to the opening of railways was published at London and contained the results of valuable tests and experiments.

BRIGHT'S DISEASE. See NEPHRITIS.

BRITISH COLUMBIA. A province of Canada on the Pacific ocean, lying between Alberta and Alaska, with an area, at the census of 1911, of 355,865 square miles; estimated 1919 at 395,610 square miles; and with a population at the census of 1911 of 392,480; at the census of 1921, 523,369. The chief cities with their population at the census of 1921 are: Victoria, the capital, 38,682; Vancouver, the largest city, 116,700; New Westminster, 14,440. Executive power is in a lieutenant-governor appointed by the Governor-General of Canada, who acts through a responsible ministry or executive council of eight members; and legislative power in a legislative assembly of 47 members elected for four years by universal, including female, suffrage. Lieutenant-Governor at the beginning of 1921, W. C. Nichol; Prime Minister, John Oliver. See CANADA.

BRITISH EAST AFRICA. A territory on the mainland of Africa belonging to Great Britain, comprising the EAST AFRICAN PROTECTORATE, the UGANDA PROTECTORATE, and ZANZIBAR. See these articles.

BRITISH GUIANA. A British colony on the northeastern coast of South America, comprising the settlements of Demerara, Essequibo, and Berbice; bounded on the east by Dutch Guiana, on the south by Brazil, on the west by Venezuela, and on the north by the Atlantic ocean. Area, 89,480 square miles; population, 1911, 296,000; estimated Dec. 31, 1919, 305,991. The leading products are rice, sugar cane, and cocoanuts; the chief exports, sugar, rum, and rice; the chief

imports, flour, machinery, textiles, and fertilizers. Statistics for commerce, finance, and shipping follow:

	1918	1919
	£	£
Imports.....	3,835,826	3,590,812
Exports.....	3,524,798	4,240,832
Revenue.....	863,625	862,491
Expenditure.....	774,481	886,568
Shipping.....	598,187	711,518

The principal imports in the year of 1920 were in respect to value, lumber, onions, bricks, and butter. The exports to the United States in 1920 amounted to \$4,223,110, which was nearly five times the value of the exports to the United States in 1919, the increase being chiefly in sugar.

BRITISH INDIA. See INDIA, BRITISH.

BRITISH NEW GUINEA. See PAPUA.

BRITISH NORTH BORNEO. A British colony occupying the northern part of the island of Borneo under the jurisdiction of the British North Borneo company and administered by a governor in Borneo and a board of directors in London. Area, about 31,106 square miles; population, 1911, 208,183. In 1911 Europeans numbered 355 and Chinese 26,002. The most numerous racial element among the natives, are the Dusuns numbering about 88,000. Only a small part of the land is cultivated and the chief sources are mahogany and other forest products and various native fruits, spices, gums, and vegetables. Among the minerals, iron, coal, gold, and mineral oil occur. Trade is with Great Britain and with the colonies and is for the most part through the ports of Hongkong and Singapore. There is a railway 127 miles long from Jesselton on the coast to Melalap and there is cable communication with other countries. Statistics for 1918 and 1919 follow:

	1918	1919
	£	£
Revenue.....	303,063	334,184
Expenditure.....	191,895	230,317
Imports.....	761,358	925,235
Exports.....	1,019,094	1,453,990

Governor at the beginning of 1921, A. C. Pearson.

BRITISH SOMALILAND. See SOMALILAND, BRITISH.

BRITISH SOUTH AFRICA. See SOUTH AFRICA, UNION OF.

BRITISH WEST AFRICA. The following colonies of Great Britain in West Africa: NIGERIA (colony and protectorate), GOLD COAST (comprising the Gold Coast colony, Ashanti, and the Northern Territories), SIERRA LEONE (colony and protectorate), GAMBIA (colony and protectorate). See these separate articles.

BRITTON, EDWARD ELMO. Volunteer army officer, died at New Brighton, L. I., October 22. His treatise on militia reorganization and other writings gave him authority as a writer on military tactics. He was born in 1859. He organized and commanded the 14th Regiment of Militia in the Spanish-American War, and was afterwards adjutant-general of the 2nd brigade. In 1909 he was convicted of larceny and sentenced to Sing Sing.

BROCKHAUS, ALBERT. See NECROLOGY.

BROOKE, FLAVIUS LIONEL. Judge, died at Port Huron, Mich., January 21. He was born at Simcoe, Ont., Oct. 7, 1858, and was admitted to the bar of Ontario in 1884. The following year he removed to Detroit, Mich., where he practiced law. In 1900 he was made judge of the circuit court and after 1908 was justice of the supreme court of Michigan.

BROOKLYN INSTITUTE OF ARTS AND SCIENCE. Educational institution founded in 1824 and reincorporated in 1890. It comprises four departments: The Department of Education, Charles D. Atkins, Director; the Department of Museums, William H. Fox, Director; Department of Botanic Garden, C. Stuart Gager, Director; and Department of Biological Laboratory, Charles B. Davenport, Director. The educational department arranges addresses, lectures, courses of instruction, and concerts throughout the year by important men and eminent artists. Only small fees are charged for these opportunities. The School of Pedagogy is one of the well-known features of the Institute. There were 992 students in attendance under 27 instructors during the year. The Brooklyn Museum conducts departments in art, ethnology, and natural science which are among the finest in the world. There were 25,000 volumes and many pamphlets in its library. The Botanic Gardens rank with the best in the United States. In the four departments there was an enrollment of 10,850 toward the close of 1921, and students at the summer session of the Biological Laboratory numbered 82. Permanent funds of the Institute for the year amounted to \$1,106,581.87. Receipts available for current expenses were \$530,323.76. There were many bequests during 1921. By the will of Mrs. Georgietta Proctor, the Department of Education received \$50,000 for the work of its Department of Physics, and \$10,000 by the will of its former president, A. Augustus Healy. The Museum and Botanic Garden also received substantial gifts through Mr. Healy's will and that of Mr. Alfred T. White, both members of the Board of Trustees and already benefactors of the Institute. There is a branch of the Institute at Jamaica, L. I. During the year the branch at Huntington, L. I., was discontinued. The president of the Institute and the Board of Trustees is Mr. Frank L. Babbott. The headquarters are care of the Brooklyn Academy of Music, Lafayette Ave., Brooklyn, N. Y.

BROOKS, WILLIAM ROBERT. Astronomer, died, May 3. He was especially noted for his discoveries of comets and as a pioneer in the application of photography in astronomy. He was born in Kent, England, June 11, 1844, but came to the United States in his boyhood and was educated in the schools of Marion, N. Y. He became an expert draughtsman, and discovered a comet with a telescope of his own make in 1881. He established an observatory at Phelps, N. Y., 1874, where he continued his astronomical researches until he was called to take charge of the Smith Observatory at Geneva, N. Y. He was later appointed professor of astronomy at Hobart College. For his discoveries he was awarded numerous prizes. The discovery of twenty-six comets has been credited to him.

BROWER, GEORGE VANDERHOOF. Lawyer and city official died in Brooklyn N. Y., October

14. He was born at Paterson, N. J., Oct. 17, 1839, served in the Civil War and studied law in Pennsylvania where he was admitted to the bar in 1866. He went to Brooklyn in the following year and was in practice there, making a specialty of commercial and real estate cases. From 1885 to 1889 he was General Appraiser of the Port of New York and in the latter year was appointed one of the Park Commissioners of Brooklyn. After the Park Department was placed under a single headed commission he was commissioner until 1894. In 1898 he was appointed commissioner for the Boroughs of Brooklyn and Queens for the term of four years.

BROWN, JAMES F. Lawyer, died December 5. He was born in Kanawha, Va., March 7, 1852, and graduated at the University of West Virginia in 1873. He was admitted to the bar in 1875 and was from that time afterwards in active practice becoming one of the leading lawyers of West Virginia. He was a member of the Board of Regents of the State University, 1890-1901 and took a prominent part in developing the resources of the Kanawha Valley. He was an officer of various commercial concerns and had extensive oil, gas, mining, and lumber interests.

BROWN, MAURICE. See *MUSIC, Artists, Instrumentalists*

BROWNLOW, ADELBERT WELLINGTON, EARL. English landed proprietor, died at Grantham, England, March 17. He was born in 1844 and succeeded to the great estates of the earldom in 1867. The property contained more than 53,400 acres. Throughout the war he loaned to the government his large property in Lincolnshire for use as an army training centre.

BROWN UNIVERSITY. An institution of the higher learning at Providence, R. I.; founded in 1764. The enrollment for the fall of 1921 was as follows: Undergraduate men 1172; separate women's college, 363; graduate department, 111. The faculty contained 85 members. The productive funds (1920-21) were \$6,452,979 and the income \$683,000. The library contained 258,000 volumes. President, W. H. P. Faunce, LL.D.

BRUCE, ALEXANDER H. See *BALFOUR OF BURLEIGH*.

BRUCE, WILLIAM SPIERS. Scotland explorer, died at Edinburgh, Oct. 28, 1921. He was born August 1, 1867. Although a physician by training and profession, his spirit of adventure soon turned him to Polar research. At the age of twenty-five he sailed in the Antarctic whaler *Balena*. His scientific observations to the northeast of Graham Land awakened interest in South Polar exploration, influenced the renewal of Antarctic whaling, and indirectly led to the establishment by Great Britain of the Falkland Island Dependencies. Later he collaborated in the zoological studies of the *Challenger* collections. Between 1895 and 1899 his personal Arctic researches covered Franz Josef Land, Hope Island, Kolguev Island, and Spitzbergen. His most important enterprise was the initiation and prosecution of the Scottish National Antarctic Expedition, in the *Scotia*, carried on without governmental aid. Under his leadership it discovered, 1904, Coats Land, 74° S., and made an extended hydrographical survey of Weddell sea. The discussions of the collections of the *Scotia* expedition fill six volumes, with much text unpublished for lack of funds. Bruce gave a year to whaling in the Seychelles, Indian ocean.

Between 1908 and 1920 he made six scientific voyages to Spitzbergen, on which region he was an acknowledged authority. His will directed that his remains be cremated, and the dust scattered over the ocean.

BRUSA, ARCHBISHOP. Metropolitan of Brusa, died in London, March 18. At the time of his death he was representative of the patriarchate of Constantinople. He was born in 1860 and was elected *locum tenens* after the retirement of the patriarch. In 1919 he went to Paris where he upheld the policy and aims of M. Venizelos and at the beginning of March, 1921, he went to London at the head of a delegation representing the Greek element that had not won its independence of the Turkish government. This was the first time England was visited by the head of the Eastern Orthodox Church.

BRYANT, FRANK AUGUSTUS. Physician and surgeon, died in April. He was born in North Jackson, Penn., Oct. 18, 1851, received an academic education and took his medical degree at Bellevue Hospital Medical College, New York City, 1895, after which he practiced in New York City. He was resident physician of the Burke Foundation for Convalescents. He wrote: *Causes and Treatment of Stammering* (1907); *Speech Disorders and Their Treatment* (1914).

BRYN MAWR COLLEGE. An institution of the higher education for women in Bryn Mawr, Pa., founded in 1880. The student enrollment in the fall was 457 of whom 92 were graduates, and there were 77 members of the faculty of whom 4 were added in the course of the year. Productive funds were \$4,802,782 and the income was \$216,966. The library contained 99,600 volumes. A new summer school for women workers in industry was opened and a new department of music was established. President, Miss M. Carey Thomas, Ph.D., LL.D.

BUBONIC PLAGUE. As is well known this infectious disease attacks certain rodents, notably the rat, and the animal then serves to spread the infection among man through certain kinds of rat flea. It must be remembered that the common rat is practically a domestic animal and in general the rodents who spread the infection among mankind must all be semi-domesticated, including some of the squirrels. A subject but little understood but conceivably of much significance is the susceptibility of wild rodents to this disease. As is known trappers have been infected in Siberia from handling a small fur-bearing rodent. The wild rats recently tested in the plague laboratory at Pensacola were of the same species as those which are domesticated. It does not appear, however, that by "wild rat" anything more is meant than a rat not bred in a laboratory. The animals were trapped in Mobile and since they were in more or less close contact with man could be classed at least as half domesticated. The experimenters evidently regard such rats as practically wild. It was found that even with active inoculation tests about a third of these rats are immune. Similar results have been obtained in earlier experiments. During the year 1921 some ten new cases of this affection were reported by Dr. Joltrain, the plague expert, in the city of Paris. It was evident that no case had been imported and there was likewise no evidence that infected rats had reached the city from a plague focus. In no

instance did the infection extend from the plague stricken subjects to others. Several of the patients if not all had lived in rat infested communities and had been flea-bitten. It is therefore evident that there are plague rats in Paris, and it is known that these animals may suffer from a chronic type of the malady not deadly to themselves but able to cause virulent disease in mankind. Several of the patients were stricken so suddenly that buboes had no time for development. For a short time, therefore, the nature of the affection passed unrecognized. But eventually blood from the finger tips and puncture fluid from enlarged glands were found to contain the plague bacillus in abundance. The infection was so virulent that plague serum was unable to influence favorably the course of the disease. The number of deaths is not given. The health authorities are somewhat apprehensive of fresh cases next summer. See *Public Health Reports*, November, 1921.

BUCKNELL UNIVERSITY. An institution of the higher education at Lewisburg, Pa.; founded in 1846. The enrollment for the fall of 1921 was 855 and for the music school 124. The faculty contained 47 members. The endowment was given at \$582,271. The library contained 47,000 volumes. In the course of the year the chemical laboratory was enlarged and a new engineering building completed. President, Emory W. Hunt, D.D.

BUCKWHEAT. The world's buckwheat production is limited practically to the temperate zone of the northern hemisphere. The leading producing countries are the United States, Canada, France, Germany, Japan, and the present reestablished portions of European Russia.

The 1921 production of the United States, according to estimates published by the Department of Agriculture, was 14,079,000 bu. grown on an area of 671,000 acres, the average yield per acre being 21 bu. While the area was 30,000 acres less than that of 1920 the yield was greater by 937,000 bu. The farm value of the crop on Dec. 1, 1921, was 81.2 cts. per bushel as compared with 128.3 cts. and 146.4 cts. on the corresponding dates in 1920 and 1919 respectively. The total farm value of the crop, on the basis of 81.2 cts. per bushel, was \$11,438,000. The distribution of the culture of the crop was the same as in recent years.

Canada produced approximately 10,000,000 bu., which was over 1,000,000 bu. above the yield of 1920. France in 1920 produced 16,668,000 bu. as compared with about 25,000,000 bu. in prewar years. Japan reported a yield of 5,000,000 bu. in 1920. The former Russian Empire led all countries in the production of this crop and at times recorded an annual yield of 50,000,000 bu. The buckwheat yield of Finland in 1920 was about 6,000,000 bu. and that of Poland 3,300,000 bu. Austria, within its present limits, produces over a half million bushels annually.

BUDWORTH, CHARLES EDWARD DUTTON. British major-general, died at Simla, India, in July. He was born in 1870, joined the Royal Artillery in 1899 and was in active service during the South African War. In the late war he became a brigadier-general in July, 1915, and was artillery adviser to Lord Rawlinson. He was credited with a large part of the preparations for the battle of the Somme and for the work done by the artillery

of the 4th Army during the last few years of the war. He was many times mentioned in dispatches and won military honors including foreign decorations.

BUFFALO, N. Y. See GARBAGE AND REFUSE DISPOSAL, and MUNICIPAL GOVERNMENT.

BUFFALO SYMPHONY ORCHESTRA. See MUSIC, Orchestra.

BUILDING. See ARCHITECTURE.

BUKOWINA. Formerly a crownland in the kingdom of Austria; annexed to Roumania on the downfall of the Austro-Hungarian monarchy in 1918. Its area when it formed part of the Austrian kingdom was 4033 square miles, with a population in 1913 of 818,328.

BULGARIA. One of the Balkan states, a constitutional monarchy lying to the south of Roumania and the east of Serbia. Capital, Sofia.

AREA AND POPULATION. The area before the war was 114,077 square kilometres but after the war treaties, was only 103,224 square kilometres. The population in 1917 was estimated at 5,517,700; and according to the census completed Dec. 31, 1920, it was about 4,800,000. According to the census of 1910 the race elements were as follows: Bulgarian, 3,518,756; Turks, 465,641; Roumanians, 79,429; Greeks, 43,275; Gypsies, 122,296; Jews, 40,133; Germans, 3402; Russians, 2505; other nationalities, 62,076. The religion is the Greek Orthodox to which in 1910 3,643,918 belonged, while the Mohammedans at that time numbered 602,084. Education is free and compulsory between the ages of seven and fourteen and is supported by the state and local authorities. In 1918-19 the elementary schools numbered 3592 with 10,068 teachers and 474,242 pupils. Secondary and higher education is supplied by progymnasias, normal schools, professional schools, training colleges for teachers, and a university at Sofia.

PRODUCTION. Agriculture which is the chief occupation engages about five-sevenths of the people and the principal food crops grown are wheat, corn, barley, oats, rye, and other grains and tobacco. About 44 per cent of the surface is agricultural land. The area under cultivation in 1919 was given officially at 2,008,632 hectares, the hectare being equal to 2.471 acres, and the production in that year amounted to 2,527,655 tons, of which the principal items were corn, 985,296 tons and wheat, 926,112. There is an abundant growth of fruit and a considerable silk worm culture. There are mineral resources including especially coal and iron and also gold, silver, lead, copper, manganese, and marble; but mining development has been backward. The total coal production of Bulgaria in 1920 exceeded that of any previous years, except 1917, according to Consul Graham H. Kemper at Sofia. The State mine at Pernik furnished 670,342 tons of the total of 748,085 metric tons mined during the year.

COMMERCE. Foreign trade in 1920 showed a considerable increase over that of 1919. Grain exports were valued at 504,361,161 leva. The chief export, however, was tobacco. In almost every item of exports there was an increase over the preceding year. The exports in 1919 were 552,253,452 leva and in 1920 1,642,998,900 leva. The imports in 1919 were 963,941,235 leva and in 1920 2,213,830,249 leva. The tables on page 108 show the destination of the exports of 1919 and

1920 and the sources of imports for those two years.

FINANCE. The budget for 1920-21 was as follows: Revenue, 2,613,530,000 levas; Expenditure, 2,954,687,440, the leva being equivalent to a franc. A synopsis of the Bulgarian budget for the fiscal year beginning April 1, 1921, as published in the *Official Gazette* for March 31, 1921, is as follows: Estimated receipts, totaling 2,152,720,000 leva, consist of the following: Direct taxes, 240,000,000 leva; indirect taxes, 717,000,000 leva; government monopolies, 244,000,000 leva; revenue and custom charges, 101,030,000 leva; fines and confiscations, 14,700,000 leva; receipts from railroads, ports, posts, telegraphs, and telephones, 372,000,000 leva; revenues from public lands, capital, and development of natural resources, 242,790,000 leva; contributions of the Communes and Departments for the reception of school-teachers, 45,500,000 leva; miscellaneous receipts, 175,700,000 leva. Estimated expenditures, totaling 2,684,699,803 leva, are listed under the following appropriations: Civil list and Sobranje, 15,342,880 leva; public debt, 647,197,063 leva; auditing department, 5,159,040 leva; Ministry of Foreign Affairs, 57,416,925 leva; Ministry of Interior, (a) administration and police, 56,597,810 leva; (b) sanitary department, 74,153,220 leva; Ministry of Public Instruction, 229,895,750 leva; Ministry of Finance, 116,548,710 leva; Ministry of Justice, 62,061,040 leva; Ministry of War, 535,632,240 leva; Ministry of Commerce, Industry, and Labor, 224,800,505 leva; Ministry of Agriculture and Public Domains, 76,872,620 leva; Ministry of Public Works, (a) ministry, 91,190,460 leva; (b) department of obligatory labor, 113,980,100 leva; Ministry of Railroads, Posts, and Telegraphs, (a) department of railroads and posts, 295,186,840 leva; (b) posts, telegraphs, and telephones, 82,664,600 leva. Resulting deficit, 531,979,803 leva. Further expenditures amounting to 1,062,085,000 leva were authorized in an extraordinary budget. The Bulgarian currency was much more stable than that of the other Balkan States. There was a considerable degree of stagnation in industry and commerce, but the agricultural situation was more satisfactory.

COMMUNICATIONS. The railway mileage in 1919 totaled 1563, all of this belonged and was worked by, the state. Vessels entering the ports of Bulgaria in 1919 numbered 202 with 153,089 tons.

DEFENSE. Before the war the strength was about 59,900 officers and men and during the war the army numbered about 500,000 men. The Treaty of Neuilly Oct. 27, 1919, limited the military forces in the future to 20,000 and prohibited all measures of mobilization but permitted a frontier guard of 3000 volunteers and a force of gendarmes, police, customs officers, etc., which should not exceed 10,000. The possession of military or naval aircraft was prohibited. The government was required to surrender all warships and submarines but permitted to retain on the Danube and on the coast, four torpedo boats and six motor boats.

GOVERNMENT. The executive power is in the king and a council of ministers nominated by him; the legislative power is in a single national assembly, the Sobranje, elected by universal manhood suffrage for four years though subject to dissolution at any time by the king, whose consent is

EXPORTS		1919		1920	
Countries	Kilos	Leva	Kilos	Leva	
Austria.....	527,555	17,605,926	43,154,935	149,475,142	
England.....	304,350	21,273,518	935,493	52,623,779	
Belgium.....			37,008,180	136,276,445	
Germany.....	572,858	20,913,152	4,815,277	171,277,122	
Greece.....	1,959,135	30,953,296	1,640,805	6,686,527	
Italy.....	1,334,996	68,208,257	23,141,322	283,923,046	
Poland.....	221,434	12,804,248	10,197,478	66,941,289	
Roumania.....	746,683	12,422,754	3,310,258	30,618,061	
United States.....	2,562,644	184,800,875	2,518,304	142,216,863	
Thrace.....			2,690,595	9,994,563	
Turkey.....	8,968,119	64,046,030	24,003,210	78,914,532	
France.....	209,765	21,401,045	5,718,202	100,091,532	
Netherlands.....			3,412,859	169,694,826	
Czecho-Slovakia.....	1,672,389	80,921,850	21,172,591	203,124,469	
Switzerland.....			508,190	22,319,109	
Sweden.....			156,303	8,174,583	
Jugo-Slavia.....			292,889	6,708,934	
Other.....	792,380	16,902,501	704,690	3,938,078	
Total.....	19,872,298	552,253,452	185,381,581	1,642,998,900	

IMPORTS		1919		1920	
Countries	Kilos	Leva	Kilos	Leva	
Austria.....	3,982	194,971	3,433,214	65,850,672	
England.....	4,690,743	104,849,723	7,607,695	311,207,578	
Belgium.....	25	3,360	2,106,388	33,924,645	
Germany.....	32,121	302,564	14,086,173	125,942,742	
Greece.....	3,614,743	53,341,143	3,074,717	55,784,194	
Italy.....	6,827,564	345,893,675	30,413,806	624,697,055	
Roumania.....	10,305,901	24,024,832	7,467,686	39,992,182	
Russia.....	2,333,243	6,674,027	4,644,533	23,938,400	
United States.....	40,933,517	195,111,815	9,609,673	130,283,914	
Turkey.....	5,637,862	146,995,483	11,089,315	408,466,697	
France.....	154,257	5,779,772	20,728,587	197,851,197	
Switzerland.....	64,050	11,203,000	268,951	26,879,116	
Spain.....	285,532	22,625,987			
Czecho-Slovakia.....	5,009,805	39,346,696	6,282,726	72,962,602	
Jugo-Slavia.....	825,647	7,113,545	1,799,601	33,134,591	
Norway.....			37,021	525,471	
Netherlands.....			700,092	21,425,990	
Sweden.....			619,897	8,016,480	
Other.....	60,104	480,642	2,182,415	32,946,723	
Total.....	80,779,096	963,941,235	126,152,490	2,213,830,249	

necessary to the passage of all measures voted by it. There is also a special large assembly known as the Grand Sobranje with twice as many representatives as the above who are chosen in the same manner. This has to do with questions involving changes in the constitution, vacancies to the throne, accession of territory, etc. The king in 1921 was Boris III, eldest son of Ferdinand, who succeeded on the latter's abdication, Oct. 4, 1918. The ministry at the beginning of 1921 as constituted in April, 1920, was as follows:

Premier, Minister for Foreign Affairs, and Minister of War, M. Stambuliski; Interior, M. Dimitroff; Justice, H. Radoloff; Commerce, R. Daskaloff; Finance, M. Torlakoff; Public Works, Tz. Bakaloff; Posts and Railways, N. Athanasoff; Education, M. Omarthevsky; Agriculture, M. Oboff.

EXECUTION OF THE TREATY. It was decreed on August 6 by the Commission of Control that the military clauses of the treaty of Neuilly should go into effect by October 1. But this did not appear practicable even to the Commission itself. The treaty required the abolition of compulsory military training, the reduction of the army to 20,000, and the keeping of the police force within the limit of 10,000 and of the frontier guards within the limit of 3000. As volunteers did not present themselves these forces were not created. The work of disbanding the former army was going on under the direction of the Control Commission and by the autumn none of it was left under arms.

The reports of these conditions, however, were denied in certain quarters where a propaganda was carried on for the purpose of getting Bulgaria into difficulty with the Allies. It was said for example that the Bulgarian government had concealed great quantities of war material and that by means of this they could easily equip an army of 856,000 veterans. This and many other rumors were in circulation for the purpose of discrediting the Bulgarian government. The Bulgarian Minister of War declared that if the decree in respect to carrying out the military clauses were executed Bulgaria would be left at the mercy of the Greeks, Serbians, and Roumanians on her frontiers.

THE MINISTRY. The Prime Minister, M. Stambuliski, a representative of the peasant party, answered the attacks of foreigners upon the government in a speech before parliament on the eve of his departure for the Assembly of the League of Nations at Geneva. He said that it was not true that the government was persecuting capitalists; on the contrary it desired foreign capital for the aid of Bulgarian industry, but the government was fighting speculation and would continue to do so. It favored by all possible means the encouragement of coöperation. In a speech made on the following day he discussed the alleged purposes of the Bolsheviks saying that the Moscow government was evidently intending to bring about a revolution in the Balkan states with the aid of the extreme radical parties in those states; that it first expected a revolution in Jugo-Slavia and that

later it would be followed by one in Roumania, Austria, and Bulgaria. He declared that the Bolshevik forces were already gathering on the northeastern Roumanian frontier and were mining the Black sea. It was the duty of Bulgaria to be on her guard, and he went on to make a suggestion that provoked much ridicule among the former enemies of Bulgaria, saying that it might be an effective means of combating the Bolsheviks if Bulgaria in the future became a part of the Jugo-Slavia state. A Soviet minister from the Ukraine was arrested, October 11, at Sofia, and the government demanded of Moscow that measures be taken to prevent Bolshevik propaganda in Bulgaria.

Spokesmen for the Stambuliski government pointed to its success in solving economic and financial problems but especially to the vigor with which it had put down disorders arising either from the reactionary or the extremely radical elements. These disorders had practically ceased in 1921, the only affair of the kind at all serious being a riot on St. Cyril's Day when disturbers, said to be Bolsheviks, threw a bomb in Sofia. This angered the people and they made an attack upon certain Communist groups and one of the newspapers, destroying the buildings and the printing press.

OTHER EVENTS. In January M. Stambuliski attempted to secure the support of Poland and Czecho-Slovakia to an international agricultural league which should serve as a protection against the two extremes, the reactionaries on the one hand, the Reds on the other, and which was known under the name of the "Green" International. In March the Bulgarian government informed the Supreme Council that, while it approved of a modification of the treaty of Sévres, it demanded Bulgarian possession of the Aegean coast in accordance with the treaty of Bucharest of 1913. On July 20 the Prime Minister denied the charges that were made against the government violating the treaty's requirements in respect to disarmament and for tending toward Bolshevism. On August 21 the government issued a further statement in respect to inability to carry out the orders of the Interallied Commission for disarmament and for the establishment of a volunteer militia by August 1. On October 11 the state trials of the members of the Radoslavoff war ministry were begun at Sofia. Alexander Dimitroff, Minister of War, was assassinated, October 22.

BÜLOW, KARL VON. See NECROLOGY.

BURDETT-COUTTS, WILLIAM LEHMAN ASHMEAD-BARTLETT. British member of Parliament, died July 28. He was born in the United States in 1851 the son of Ellis Bartlett of Plymouth, Mass., educated at Oxford, and was special commissioner in the Russo-Turkish war. In 1881 he married the Baroness Burdett-Coutts and aided her in the development of the various philanthropic schemes to which a large part of her vast wealth was applied. He was one of the founders of the British East African possessions and during the Boer war he was correspondent of the *London Times* in regard to the treatment of the sick and wounded and his reports led to the appointment of a commission of inquiry and to reforms of the army medical service. He was also prominent in the reform of railway administration. He was member of Parliament for thirty-six years, being elected first in 1885. He wrote a volume on the

Russo-Turkish war and contributed largely to the magazines.

BURGOYNE, Sir JOHN MONTAGU. British military officer (retired), died in Bedfordshire, England, March 19. His name was largely known through his having taken part in effecting the escape of the Empress Eugénie in France in 1870. He was born, Oct. 23, 1832, and served in the Grenadier Guards. He retired in 1861, with the rank of colonel. He was aboard his yacht the *Gaselle* off Deauville, September 6, when the Empress, under the care of the American dentist, Dr. Evans, reached the coast, and he took the fugitives across to Ryde Harbor.

BURLIN, NATALIE CURTIS. Writer, died in France October 23. She was born in New York City and was a niece of George William Curtis. After studying music in France and Germany she applied herself to the collection of folk-songs of Indian tribes, traveling widely among them for that purpose; and she made similar studies among the Zulu and other tribes of South Africa, and among the American negroes. In 1917 she married the artist, Paul Burlin. Among her books may be mentioned *Songs of Ancient America*, and *The Indian's Book*.

BURMA. The largest and most easterly province of British India. Area about 231,000 square miles; population in 1911, 12,115,217. The movement of population in 1919 was: Birth rate, 29.89; death rate 31.09. The population comprises nine racial groups of which the Burman is the chief, Burmese being the language spoken by about 8,000,000 of the inhabitants. Agriculture is the chief occupation and rice one of the main products and the principal export. Other exports include: Petroleum products, cabinet woods, and cotton. The capital of Lower Burma is Rangoon with a population of 293,316; of Upper Burma, Mandalay with 138,299. Lieutenant-Governor at the beginning of 1921 was Sir Reginald Henry Craddock.

BURNAM, JOHN MILLER. Classical scholar and university professor, died November 21. He was born at Irvine, Ky., April 9, 1864; studied at Washington University and at Yale, graduating at the latter in 1884. Also studied abroad and spent much time there during vacations in research. He taught Latin in Georgetown (Ky.) College and the University of Missouri till 1899. After September, 1900, he was professor of Latin in the University of Cincinnati. He wrote a number of monographs on Latin subjects and philological subjects besides contributing to the *Journal of Archaeology*. One of his latest works was *Technologia Lucensis* (1919).

BURNHAM, SHERBURNE WESLEY. Astronomer, died, March 11. From 1893 until his death he was professor of practical astronomy and astronomer of the Yerkes Observatory at the University of Chicago. He was born at Thetford, Vt., Dec. 12, 1838, and devoted himself to the study of astronomy while pursuing his profession as a stenographer. He soon made important discoveries of double stars, and in 1877 was called to the Chicago Observatory. After that he worked at the Lick Observatory, and later (1893) was appointed to the professorship above mentioned. He is reported to have discovered 1274 new double stars. The Lalande Prize in astronomy was awarded to him by the Paris Academy of Sciences in 1904. Among his works may be mentioned: *A General Catalogue of Double Stars Within*

121° of the North Pole (1906); and *Measures of Proper Motion Stars* (1912).

BURR, WILLIE OLCOTT. Connecticut journalist, died at Hartford, Conn., November 27. He was for many years editor of the *Hartford Times* and known as the dean of Connecticut journalists. He was born at Hartford, Sept. 27, 1843, descendant of one of the founders of the city, and the son of A. E. Burr who founded the *Hartford Times*. He entered his father's office in 1861 and was continuously engaged on the paper thereafter. Like his father he was prominent in Democratic political circles in the State. He was one of the Directors of the Connecticut State Prison.

BURROUGHS, JOHN. Essayist and naturalist, died, March 29. The literary quality of his many books and papers on animal life and other natural subjects placed him in the front rank of American writers of his time. He was born at Roxbury, N. Y., April 3, 1837, the son of a farmer. He received an academic education and taught school for eight years. He began the writing of essays in his boyhood, deriving suggestion from reading the works of Samuel Johnson, Emerson, and others, and especially influenced by Emerson, Walt Whitman and Matthew Arnold. He worked as a treasury clerk from 1864 to 1873 and as a national bank examiner from 1873 to 1884, but meanwhile contrived to pass occasional intervals on a farm in the country. From his youth he made frequent contributions to periodicals, chiefly on outdoor subjects. The chief quality of his work is the closeness of his observations, although his style shows the effect of his readings in English literature. The tendency of his literary judgments was toward the unconventional and indicated a dislike of the dogmatizing spirit of many of his contemporaries. The list of his writings is too long for inclusion, but among the principal ones the following may be mentioned:

Notes on Walt Whitman as Poet and Person (1867); *Wake Robin* (1871); *Winter Sunshine* (1875); *Birds and Poets* (1877); *Locusts and Wild Honey* (1879); *Pepacton* (1881); *Fresh Fields* (1884); *Signs and Seasons* (1886); *Indoor Studies* (1889); *Riverby* (1894); *Whitman, a Study* (1896); *The Light of Day* (1900); *Squirrels and other Fur*

Bearers (1900); *Literary Values* (1904); *Far and Near* (1904); *Ways of Nature* (1905); *Bird and Bough* (poems 1906); *Camping and Tramping with Roosevelt* (1907); *Leaf and Tendril* (1908); *Time and Change* (1912); *The Summit of the Years* (1913); *The Breath of Life* (1915); *Under the Apple Trees* (1916); *Field and Study* (1919).

BUTLER, GEORGE FRANK. Physician and author, died, June 22. He was born at Moravia, N. Y., March 15, 1857, and after an academic education went into the drug business in Massachusetts. He took his medical degree at Rush Medical College in 1889, and became a lecturer there from 1889 to 1892. He afterwards taught successively in the faculties of several other medical schools in the West, and in 1906 became professor of clinical and preventive medicine at the Chicago College of Medicine and Surgery. After 1915 he was professor emeritus. He was a member of many important medical bodies in Chicago. Among his writings may be mentioned: *Treatises on materia medica*; theapeutics and pharmacology, and a number of literary and poetical works, including: *The Isle of Content* (1902); *The Exploits of a Physician Detective* (1907); *Sonnets of the Heart* (1909); *Songs of the Heart* (1910); *Every Boys' Book* (1912); *Every Girls' Book* (1912); *The Travail of a Soul* (1914). He also published in 1913-14, *The Treatment of Disease*.

BUTTER. See DAIRYING.

BYNG, JULIAN, BARON OF VIMY AND THORPE LE SOKEN, GENERAL. British general distinguished in the war, was appointed in 1921 Governor-General of Canada. He was born, Sept. 11, 1862, and joined the 10th Royal Hussars in 1883. He served in the Sudan expedition in the following year, winning military honors, and in the South African war, 1899-1902, where he was mentioned in dispatches and received both the Queen's and the King's medals. During the European war he attracted attention from the first, and while engaged in the Dardanelles expedition, was promoted, lieutenant-general. He was in command respectively of the 3rd Cavalry Division, the Cavalry Corps, the 9th Army Corps, the 17th Army Corps, the Canadian Corps, and the 3rd Army.

CALDER, FREDERICK M. See NECROLOGY.

CALIFORNIA. POPULATION. According to the report of the census of 1920, there were 3,428,861 residents in the State, Jan. 1, 1920, as compared with 2,377,549 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn	1921	116,000	4,060,000	\$ 3,126,000
	1920	130,000	4,587,000	5,504,000
Oats	1921	140,000	3,780,000	1,928,000
	1920	155,000	4,650,000	3,720,000
Wheat	1921	557,000	8,355,000	8,940,000
	1920	714,000	9,996,000	17,993,000
Barley	1921	1,188,000	29,700,000	16,632,000
	1920	1,250,000	28,750,000	28,750,000
Hay	1921	2,296,000	¹ 5,187,000	56,321,000
	1920	2,320,000	¹ 5,122,000	101,024,000
Oranges	1921		¹ 22,500,000	49,500,000
	1920		¹ 21,600,000	47,088,000

¹ Tons.

² Boxes.

Crop	Year	Acreage	Prod., bu.	Value
Rice	1921	120,000	5,880,000	6,782,000
	1920	162,000	8,262,000	9,997,000
Beans	1921	272,000	3,618,000	10,130,000
	1920	300,000	3,000,000	9,900,000
Potatoes	1921	74,000	10,064,000	13,083,000
	1920	70,000	9,800,000	14,700,000
Sweet potatoes	1921	8,000	960,000	1,200,000
	1920	8,000	1,016,000	1,626,000
Cotton	1921	140,000	² 74,000	6,290,000
	1920	275,000	² 75,000	11,290,000
Hops	1921	12,000	² 14,220,000	3,555,000
	1920	12,000	² 18,900,000	6,615,000

² Bales.

⁴ Pounds.

IRRIGATION AND DRAINAGE. The accompanying table presents the statistics of irrigation for the State of California collected at the census of 1920. Statistics of acreage irrigated, of acreage, yield, and value of crops grown on irrigated land, and of cost of operation and maintenance relate to the year 1919; other items relate to the year 1920. Figures for the census of 1910 are given for purposes of comparison.

Item	Census of—		Increase, per cent
	1920	1910	
Number of all farms	117,670	88,197	33.4
Approximate land area of the state	99,617,280	99,617,280	.....
All land in farms	29,365,667	27,931,444	5.1
Improved land in farms	11,878,339	11,389,894	4.3
Number of farms irrigated	67,391	39,352	71.3
Area irrigated	4,219,040	2,664,104	58.4
Area enterprises were capable of irrigating	5,894,466	3,619,378	62.9
Area included in enterprises	7,805,207	5,490,360	42.2
Per cent irrigated:			
Number of all farms	57.3	44.6	.....
Approximate land area of state	4.2	2.7	.....
Land in farms	14.4	9.5	.....
Improved land in farms	35.5	23.4	.....
Excess of area enterprises were capable of irrigating over area irrigated	1,675,426	955,274	75.4
Excess of area included in enterprises over area irrigated	3,586,167	2,826,256	26.9
Area of irrigated land reported as available for settlement	533,981	(¹)	.....
Capital invested	\$194,886,388	\$72,580,030	168.5
Average per acre enterprises were capable of irrigating	\$33.06	\$20.05	64.9
Estimated final cost of existing enterprises	\$225,799,123	\$84,392,344	167.6
Average per acre included in enterprises	\$28.93	\$15.37	88.2
Average cost of operation and maintenance per acre	\$4.40	\$1.54	185.7

¹ Not reported in 1910.

The following statistics of the drainage of the State in 1920 were published by the United States Bureau of the Census:

Item	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state	117,670	100.0
Farms reporting land having drainage	5,078	4.3
Farms reporting land needing drainage	3,187	2.7
All land in farms	29,365,667	100.0
Improved land in farms	11,878,339	40.4
Farm land reported as provided with drainage	813,960	2.8
Farm land reported as needing drainage	286,320	1.0
DRAINAGE ENTERPRISES		
Approximate land area of the state	99,617,280	100.0
All land in operating drainage enterprises	1,108,319	1.1
Improved land	1,038,835	1.0
Timber and cut-over land	12,263	(¹)
Other unimproved land	57,221	0.1
Total capital invested in and required for completion of operating enterprises	\$54,021,627	100.0
Capital invested in these enterprises to Dec. 31, 1919	\$47,687,153	88.2
Additional capital required to complete these enterprises	\$6,334,474	11.7

¹ Less than one-tenth of 1 per cent.

The total works completed by drainage enterprises to Dec. 31, 1919, comprised 3009.8 miles of open ditches, 85.6 miles of tile drains, and 1131.1 miles of levees; the additional lengths under construction were 204.4 miles of open ditches, 23.0 miles of tile drains, and 120.4 miles of levees. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the drainage enterprises, nor the works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. There were 96 pumping districts among the operating enterprises, equipped with 191 centrifugal pumps and 1 water wheel. The principal crops grown on the drained land in drainage enterprises were reported as small grains, potatoes, alfalfa, and corn.

MINERAL PRODUCTION. According to estimates of the United States Geological Survey, the metal output of California in 1921 was approximately 761,660 ounces of gold, valued at \$15,744,910; 3,514,276 ounces of silver, which under the Pittman law was worth nearly the same number of dollars; 11,681,705 pounds of copper; 779,298 pounds of lead; and 842,400 pounds of zinc. The production of these metals in 1920 was gold, 692,297 ounces, valued at \$14,311,043; silver, 1,706,327 ounces; copper, 12,626,272 pounds; lead, 4,813,510 pounds; zinc, 1,165,509 pounds. The above figures reflect exactly the trend of mining during 1921. The market for copper, lead, and zinc was so poor that very few mines which make these metals their major product were in operation. A little lead ore rich in silver was mined, as well as some zinc ore, which was converted into zinc oxide. On the other hand, the mines that produce mainly gold or silver were active throughout 1921, and numerous mines were reopened during the year. The signs of revival were evident in the spring, and by midsummer there were almost daily rumors of gold mines either being reopened or under development. The greater part of the silver produced can be credited directly to the mines near Handsburg that are grouped about the famous Kelly mine. For a time in July it looked as if the mines along the Mother Lode, particularly those near Nevada City and Grass Valley, which are among the largest-producing deep mines in the State, might be forced to close because of labor troubles. These troubles, however, were finally adjusted, and a wage scale was established to hold until June 30, 1922. This scale, \$4.25 a day for machine men and \$3.75 for shovelers, was more or less generally adopted throughout the State. In the northern counties the old copper-smelting town of Keswick had about disappeared and was replaced by Matheson, 3 miles farther north, where the tram from the Hornet mine of the Mountain Copper Co. has its terminal.

FINANCE. According to the report of the State Comptroller, total receipts during the fiscal year 1920-21 were \$68,525,160.17 and disbursements for the same period were \$65,598,516.32. The assessed value of taxable property on July 1, 1921, was \$4,921,786,485. The net bonded indebtedness on the same date was \$95,579,460. The revenue under the new rates on corporations for the two-year period beginning July 1, 1921, was estimated at about \$68,000,000. The total receipts during the fiscal year 1919-20 were, as noted in the preceding YEAR BOOK, \$58,742,199

and the disbursements for the same period, \$61,908,140.

CHARITIES AND CORRECTIONS. The total number of inmates in State institutions on Nov. 30, 1921, was 17,080. This was distributed as follows: Industrial Home for Adult Blind, 137; State Correctional Schools, 877; State Hospitals for the Insane, 11,062; State Homes for Feeble-Minded, 1591; State Prisons, 3413. The state institutions under the Department of Institutions created by the act of July 30, 1921, included the following: State hospitals at Agnew; Talmage, Mendocino County; the Napa hospital at Imola; Norwalk, Los Angeles County; Southern California State Hospital, Patton, San Bernadino County; Stockton State hospital; California School for Girls at Ventura; California Industrial Farm for Women near Sonoma; Industrial Home of Mechanical Trades for the Adult Blind; Preston School of Industry, near Iona; Pacific Colony at Walnut; Sonoma State Home at Eldridge; Whittier State School at Whittier.

LEGISLATION. At the 1921 session of the legislature, important laws passed included the following: Soldier aid measures providing for financial assistance in house-building, land settlement, and education; reorganization of numerous state boards and offices into six administrative departments under the Governor; small claims courts; county public defender; State prohibition enforcement act; citizenship classes for applicants for citizenship; licensing of aircraft. In spite of the opposition of the utility companies taxes on the gross income of public service corporations were increased about 25 per cent.

OFFICERS. Governor, William D. Stephens; Lieutenant-Governor, C. C. Young; Secretary of State, Frank C. Jordan; Comptroller, Ray L. Riley; Treasurer, Friend W. Richardson; Attorney-General, U. S. Webb; Surveyor-General, W. S. Kingsbury; Adjutant-General, J. J. Boree; Superintendent of Public Instruction, Will C. Wood; Commissioner of Corporations, E. E. Daugherty; Librarian, Milton J. Ferguson; Legislative Counsel, George B. Bush; President Railroad Commission, Harley W. Brundige; Chairman Industrial Accident Commission, Will J. French.

JUDICIARY. Supreme Court: Chief Justice, Lucien Shaw; Associate Justices, Curtis D. Wilbur, Thomas J. Lennon, W. A. Sloane, Charles A. Shurtleff, William H. Waste, William P. Lawlor.

CALIFORNIA, UNIVERSITY OF. A co-educational institution of the higher learning at Berkeley, Calif., founded in 1860. The number of students registered down to Nov. 1, 1921, for the year 1921-22 was given as approximately 11,945 excluding duplicates, 211. The women numbered 4965. These were in the degree-giving departments alone. In other departments including university extension and the summer sessions there were 30,118 of whom 20,337 were in the university extension courses. Grand total deducting duplicates, 41,852. The summer session of 1921 had an enrollment of 7864. The degree-giving departments were as follows: Colleges of Letters and Science, Commerce, Agriculture, Mechanics, Mining, Civil Engineering and Chemistry; the schools of Architecture and Jurisprudence; the Medical School; the Hastings College of the Law; College of Dentistry; California College of Pharmacy; Junior College Department (Southern Branch, Los Angeles); Hooper Founda-

tion for Medical Research; Nonprofessional graduate school. The other departments were as follows: Teachers' Curricula, Los Angeles; Los Angeles Medical Dept.; Summer Sessions; University Farm School, Davis, Calif.; University Extension; Agriculture Extension. The teaching staff for the year 1921-22 numbered 979 and the administrative 69. The library contained 427,525 volumes. Productive funds, about \$6,500,000; income (1920-21) \$6,800,000. In 1921 a Students' Union building was under construction, the sum of \$300,000 having been subscribed for the purpose. President, David Prescott Barrows, Ph.D.

CALVÉ, EMMA. See *MUSIC, Artists, Vocalists.*

CAMBODIA. A French protectorate in the Far East, forming part of French Indo-China, bounded on the south by Cochinchina and on the north and northwest by Laos and Siam. Area, 45,000 square miles; population estimated in 1919, 2,000,000; capital, Pnom-Penh, with a population of about 85,000. The chief products are: Rice, pepper, cotton, tobacco, saltfish, betel, cattle, hides, etc. It is a native kingdom under French protection. The king in 1921 was Sisowath who came to the throne in 1904. See *FRENCH INDO-CHINA.*

CAMERON, Sir CHARLES ALEXANDER. British physician and health officer, died at Dublin, Ireland, February 27. He was born at Dublin, July 16, 1830, and educated at the university there and in Germany. He was chief medical officer at Dublin and the author of works on the chemistry of agriculture and public health and hygiene and wrote *History of Irish Medical Institutions*. He published a volume of reminiscences in 1913.

CAMEROON. See *KAMERUN.*

CAMPBELL, RALPH EMERSON. Judge, died, January 9. He was born in Butler County, Pa., May 9, 1867; graduated at the Indiana Normal University in 1891, and having studied law at the University of Kansas, practiced in Indian Territory, afterwards Oklahoma. He became United States district judge for the eastern district of Oklahoma, Nov. 16, 1907. He resigned, Sept. 1, 1918, and from that time until his death was in practice in Tulsa, Okla.

CAMPBELL-TIPTON, LOUIS. American composer, died in Paris, May 1. Born in Chicago, Nov. 21, 1877, he studied in the United States and Germany. From 1900 to 1905 he lived in Chicago, after that in Paris. He wrote chiefly for piano, but also left in manuscript several works for orchestra and two operas.

CAMPFIRE GIRLS. An organization founded in 1912 by Dr. and Mrs. Luther Gulick for the general purpose of promoting good health by outdoor life, encouraging economy and effecting social improvement. It is an organized effort to find romance, beauty, and adventure in everyday life. It seeks to make the homely task contribute to the joy of everyday living. A regular feature of the programme each year is camping out. Groups of from six to twenty girls with a Guardian comprise a Campfire. The Guardian must be at least eighteen. Membership dues are one dollar and go toward the support of the National Headquarters at 31 East 17th Street, New York City. Workers are maintained in the field and monthly bulletins of instruction are supplied the Guardians. Each Campfire and Campfire Girl has a name

and a symbol. Ceremonial meetings are held once a month. The Campfire Law requires the following: Seek beauty, give service, pursue knowledge, be trustworthy, hold on to health, glorify work, and be happy. They consider their personal health a sacred thing. During 1921 more than 100,000 Campfire Girls carried out this point of the law by camping in the open for one or more weeks. The Campfire programme emphasizes as significant in every girl's life, a knowledge and love of nature, handicrafts of all sorts, service, which is citizenship and patriotism, and ability to earn money and keep accounts. The programme has been found especially adaptable for girls' work in schools and churches, and it is now being followed by various denominations as the official programme for the "between-Sunday" activities of the girls. In their reconstructive programme followed in 1921, the girls pledge themselves to conserve health and become sturdy and rugged, to create wealth for self and country by saving and to reestablish the old-fashioned womanhood by making the home more beautiful and happy. Courses in Campfire work are conducted in the Michigan Normal College at Ypsilanti, and the Colorado Teachers' College. The New York University Summer School also offers a thorough course in Campfire training.

The membership of the movement is approximately 150,000 girls, divided into 7849 groups in every State in the Union and in foreign countries as follows: Alaska, Canada, Mexico, Argentina, Brazil, Bolivia, Canal Zone, Scotland, India, Japan, Spain, Porto Rico, England, Holland, Turkey, China, Cuba, Hawaii, and the Philippine Islands.

The Honorary officers in 1921 were Hon. Warren G. Harding, president; Woodrow Wilson and William H. Taft, vice-presidents. Mrs. Warren G. Harding is Honorary Chairman of the National Supervisory Council. Mrs. Oliver Harman is president, Miss Florence Hughes, 1st vice-president, Dr. Myron T. Scudder, treasurer, and Mr. Lester F. Scott, secretary and national executive. The official organ of the movement is *Everygirl's Magazine*, which is published monthly at the National Headquarters, 31 East 17th Street, New York. The annual meeting was held in Cleveland, Ohio, February 23-28. William Estabrook Chancellor delivered an address on the "Symbolism of Camp Fire and its relation to the Psychology of the Adolescent Girl."

CANADA. A British dominion of North America, with the United States on the south, and the Arctic ocean on the north, and extending from the Atlantic to the Pacific ocean. Capital, Ottawa.

AREA AND POPULATION. The total area is 3,729,665 square miles of which 125,755 are under water; divided into nine provinces and two territories; total population, June 1, 1911, 7,206,643; at the census of 1921, 8,772,631. In 1917 the Indians numbered 105,998 and the Eskimo, 3296. In 1911 the urban population was 3,280,964. During the year ending March 31, 1920, the immigrants numbered 117,336, of whom 49,656 came from the United States; 45,855 were English and Welsh; 10,997, Scotch; 2751, Irish. The cities of over 100,000 in 1911 were: Montreal, 470,480; Toronto, 376,538; Winnipeg, 136,035; Vancouver, 100,401. Ottawa in 1911 had a population of 87,062; Quebec, 78,190. Preliminary

figures of the 1921 census gave the city of Montreal 607,063; Winnipeg, 178,364; Ottawa, 107,137; Quebec, 94,058. The census of 1921 was not complete at the close of the year, but the preliminary figures for the province of Quebec were 2,349,067, an increase or 343,291 over the census of 1911; for Prince Edward Island, 88,536; Nova Scotia, 524,579; New Brunswick, 388,092; Manitoba, 613,008; and Alberta, 581,995.

EDUCATION. Instruction is directly under the provincial governments. Complete figures for the Dominion were not available for 1921. The following table taken from the *Statesman's Year Book* of 1921, shows the statistics by provinces for 1918 and 1919:

Provinces	Year	Schools	Teachers	Pupils
Ontario.....	1918	6,995	14,357	564,655
Quebec.....	1918	7,244	16,995	475,219
Nova Scotia.....	1919	1,797	3,012	106,982
New Brunswick.....	1919	1,299	2,107	71,029
Manitoba.....	1919	2,017	3,215	114,662
British Columbia.....	1919	582	2,332	72,006
P. E. Island.....	1919	475	606	17,865
Alberta.....	1918	2,966	5,652	111,109
Saskatchewan.....	1918	4,145	6,223	151,326
Total.....		27,520	54,499	1,684,853

The universities numbered 22 with 2616 teachers and 20,535 students in 1918-19, and there are several colleges in each province. The provincial universities supported by the government include those of: New Brunswick, Toronto, Saskatchewan, Alberta, and British Columbia. The universities supported by private funds are those of: McGill, Dalhousie, Western University, University of London, University of Ontario, and Queen's University, the last-named receiving state aid. There are also various denominational universities and colleges, numbering 43 with 12,671 pupils in attendance in 1918-19.

PRODUCTION. The total value of field crops in 1920 was placed at \$1,445,000,000. The following table taken from the *Statesman's Year Book* of 1921 gives the details for the principal crops in 1920.

1920	Wheat		Barley		Oats	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
Ontario.....	1,030,000	22,973,000	484,000	16,660,000	2,880,000	129,171,000
Quebec.....	222,000	3,775,000	194,000	4,910,000	2,206,000	66,729,000
Nova Scotia.....	26,000	512,000	11,000	298,000	153,000	4,637,000
New Brunswick.....	29,000	464,000	8,000	194,000	309,000	9,118,000
Manitoba.....	2,706,000	37,542,000	839,000	17,520,000	1,874,000	57,657,000
P. E. Island.....	38,000	453,000	5,000	123,000	183,000	5,095,000
British Columbia.....	46,000	874,000	10,000	364,000	48,000	1,663,000
Alberta.....	4,074,000	83,461,000	481,000	12,739,000	3,090,000	115,091,000
Saskatchewan.....	10,061,000	118,135,000	519,000	10,502,000	5,107,000	141,549,000
Total Canada.....	18,232,000	263,189,000	2,551,000	63,310,000	15,850,000	530,710,000

1920	Potatoes		Flax		Hay and Clover	
	Acres	Bushels	Acres	Bushels	Acres	Tons
Ontario.....	158,000	23,962,000	21,000	224,000	3,534,000	4,459,000
Quebec.....	311,000	57,633,000	16,000	184,000	4,290,000	5,363,000
Nova Scotia.....	50,000	10,209,000	.....	.....	632,000	948,000
New Brunswick.....	78,000	15,510,000	.....	.....	726,000	872,000
Manitoba.....	37,000	3,410,000	146,000	1,158,000	209,000	312,000
P. E. Island.....	36,000	6,175,000	.....	.....	243,000	304,000
British Columbia.....	18,000	2,934,000	.....	.....	127,000	254,000
Alberta.....	43,000	7,138,000	104,000	726,000	384,000	499,000
Saskatchewan.....	54,000	6,861,000	1,141,000	5,705,000	235,000	328,000
Total Canada.....	785,000	133,832,000	1,428,000	7,997,000	10,379,000	13,339,000

Other products in 1920: Peas, beans, buckwheat, rye, mixed grains, corn, sugar beets, turnips and other roots, alfalfa.

Livestock, June 15, 1920, was as follows: Horses, 3,400,000; milk cows, 3,530,000; other cattle, 5,947,000; sheep, 3,721,000; pigs, 3,517,000. In 1919 the wool clip was estimated at 15,000,000 pounds; the production of creamery butter at \$55,182,000, and factory cheese, \$44,806,000. No later figures for forest products were available than those contained in the preceding YEAR BOOK.

The total production of pig iron in Canada during the calendar year 1917 was 1,044,000 long tons; in 1918, 1,067,000 tons; in 1919, 819,000 tons; in 1920, 974,000 tons; and for the first two months of 1921 the production was 99,000 long tons. Steel ingots and castings produced in Canada aggregated, for the year 1917, 1,558,000 long tons; 1918, 1,681,000 tons; 1919, 924,000 tons; 1920, 1,109,000 tons; and for the first two months of 1921, 99,000 tons.

FISHERIES. In 1920 the value of the catch was placed at \$49,321,217, a decrease of \$7,187,262 from 1919. The shares of the provinces were as follows: British Columbia, \$22,329,161; Nova Scotia, \$12,742,659; New Brunswick, \$4,423,745; Ontario, \$3,410,750; Quebec, \$2,591,982; Prince Edward Island, \$1,714,663; Manitoba, \$1,249,607; Alberta, \$529,078; Saskatchewan, \$296,472; Yukon, \$33,100. Salmon made up more than a third of the value of the catch and next in importance were in their order: Lobsters, cod, halibut, herring.

COMMERCE. For the twelve months ending June 30, 1921, the imports were \$1,085,311,676 and the exports \$1,113,336,822. About nine-tenths of the imports came from the United States and Great Britain, the former supplying 70 per cent and the latter 16 per cent. Over 72 per cent of the exports went to the same two countries, the United States taking 45 per cent and Great Britain, 27 per cent. The tables on page 115 show the chief articles imported and exported respectively in the years ending June 30, 1920 and 1921.

18 months ended June 30—			12 months ended June 30—		
Articles	1930	1931	Articles	1930	1931
Animals, living.....	\$ 2,562,212	\$ 3,055,211	Metals—Continued:		
Articles for army and navy.....	775,933	254,738	Gold and silver.....	886,466	959,456
Asphaltum and asphalt.....	524,475	666,054	Iron and steel.....	168,583,337	179,438,902
Books and printed matter.....	11,960,320	13,362,600	Lead.....	1,565,229	1,601,454
Breadstuffs.....	29,584,377	17,248,779	Tin.....	12,926,267	10,867,417
Bricks, clays, and tiles.....	2,700,276	4,142,619	Zinc.....	702,787	598,890
Butter.....	254,580	2,096,599	Musical instruments.....	4,493,948	3,151,647
Cheese.....	252,743	263,793	Paints, colors, and varnish.....	4,855,346	3,992,478
Chemicals.....	22,879,763	21,357,496	Paper.....	11,252,696	12,334,550
Clocks and watches.....	3,473,450	3,478,621	Pickles and sauces.....	741,848	630,007
Coal:			Ribbons.....	3,899,173	3,084,117
Anthracite.....	33,060,688	42,095,234	Rubber.....	20,583,249	11,632,300
Bituminous.....	30,552,479	72,520,602	Seeds.....	5,437,348	3,756,297
Cocoa and chocolate.....	7,632,988	2,866,880	Settlers' effects.....	10,887,690	10,236,774
Coffee.....	6,062,836	3,402,712	Silk.....	41,438,783	22,858,412
Cotton.....	112,513,303	73,497,430	Soap.....	1,833,113	1,172,290
Curtains and shams.....	583,263	522,456	Stone, marble, and slate.....	3,714,915	4,533,896
Earthenware and chinaware.....	4,337,986	5,889,476	Sugar and molasses.....	85,481,139	76,107,228
Eggs.....	3,373,393	2,189,727	Tea.....	10,309,146	8,080,514
Fish.....	4,041,005	3,193,074	Tobacco.....	16,097,946	11,538,860
Flax, hemp, and jute.....	18,509,483	10,988,654	Tobacco pipes.....	1,055,933	1,380,166
Furs.....	13,842,793	5,209,452	Vegetables.....	6,030,894	6,826,019
Hides and skins.....	25,661,164	6,358,944	Vehicles.....	35,247,004	24,580,579
Jewelry.....	1,353,918	1,022,028	Vessels.....	5,645,842	2,945,701
Lard.....	2,882,248	1,934,920	Wood.....	24,393,749	27,750,069
Leather.....	18,352,513	7,557,084	Wool.....	79,705,514	49,223,845
Meats.....	16,661,612	11,072,673	All other.....	262,938,520	278,125,821
Metals:					
Brass.....	5,054,848	5,606,202	Total.....	\$1,210,216,377	\$1,085,311,676
Copper.....	10,063,846	7,720,439			

18 months ended June 30—			12 months ended June 30—		
Articles	Quantity	Value	Quantity	Value	
Animals, living.....		\$ 47,240,706		\$ 26,056,840	
Butter..... pounds.....	17,738,393	9,946,796	8,646,699	4,493,721	
Cheese..... do.....	133,909,035	38,280,575	135,622,786	35,445,281	
Clothing.....		10,380,862		1,434,599	
Coal..... tons.....	2,400,512	15,221,704	2,148,196	15,946,555	
Cartridges.....		4,908,085		19,123	
Explosives, excluding cartridges.....		2,664,005		717,161	
Fish.....		39,736,705		32,628,233	
Furs.....		20,866,703		12,495,809	
Grain:					
Oats..... bushels.....	17,075,999	17,038,378	20,027,710	12,319,549	
Wheat..... do.....	65,769,237	166,474,427	139,245,615	317,147,940	
All other grain..... do.....	15,871,376	24,741,212	13,701,911	18,197,629	
Hides and skins.....		18,939,302		4,044,291	
Leather.....		18,283,846		4,625,297	
Meats:					
Bacon and ham..... pounds.....	177,139,300	56,188,466	101,034,000	30,406,828	
Beef..... do.....	115,393,000	20,407,361	43,250,900	6,454,342	
Canned meats..... do.....	2,258,441	1,999,944	560,380	174,220	
Pork..... do.....	6,196,200	1,507,825	2,965,500	628,068	
All other meats..... do.....		3,019,480		3,334,547	
Metals:					
Aluminum bars, etc..... hundredweight.....	230,834	6,897,927	93,762	2,931,234	
Asbestos..... tons.....	148,821	9,979,968	180,764	10,634,079	
Brass, old and scrap..... hundredweight.....	82,011	1,153,398	16,005	176,297	
Copper.....		13,888,603		11,854,366	
Gold.....		5,921,438		2,669,814	
Iron and steel.....		62,292,117		46,611,910	
Nickel..... hundredweight.....	519,395	10,524,253	364,539	6,471,258	
Silver..... ounces.....	11,515,606	13,564,433	13,627,067	10,140,343	
Milk and cream.....		10,178,808		10,532,725	
Paper:					
Printing..... hundredweight.....	14,836,508	58,421,524	14,106,267	76,952,248	
All other paper.....		11,485,151		11,163,028	
Rubber.....		11,475,907		8,665,344	
Seeds, flax..... bushels.....	779,777	4,103,977	2,434,274	5,313,250	
Textiles.....		22,406,909		8,984,570	
Vegetables.....		16,455,384		4,147,382	
Vehicles:					
Automobiles..... number.....	25,178	16,001,499	16,731	11,016,866	
Automobile parts.....		3,215,788		3,801,553	
Wheat flour..... barrels.....	7,217,348	77,406,881	6,689,402	70,550,876	
Wood:					
Unmanufactured.....		119,993,113		102,594,133	
Manufactured—					
Pulp..... hundredweight.....	17,033,803	51,872,452	12,063,021	60,725,461	
Other manufactured wood.....		3,894,801		3,925,695	
All other.....		183,653,586		116,901,858	
Total.....		\$1,232,632,099		\$1,113,336,822	

Wheat was the chief export and in 1921 more than doubled in quantity and nearly doubled in value the exports in year ending June 30, 1920.

No figures for the entire year were available, but the following information for the twelve months ending in September, 1921, and in September, 1920, respectively, was supplied by the Dominion Bureau of Statistics:

means clear that the arrangement would be permanent or that it was generally acceptable. The platform of the Progressives or Farmers' party favored it, while both the Conservatives and the Liberals were divided on the subject. The roads had been taken over when they were approaching bankruptcy and there was a considerable Conservative element that favored public ownership

VALUE OF CANADIAN IMPORTS AND EXPORTS DURING THE 12 MONTHS ENDED SEPTEMBER, 1920, AND 1921

Items	Imports for consumption		Canadian exports	
	1920	1921	1920	1921
Vegetable products.....	\$ 292,570,786	\$205,939,957	\$ 374,495,767	\$449,427,264
Animal products.....	89,881,608	45,568,513	263,618,107	160,834,713
Fibres and textiles.....	316,385,970	140,348,352	32,156,794	10,402,086
Wood and paper.....	53,586,507	45,294,989	276,794,846	212,719,888
Iron and its products.....	237,541,838	165,439,295	82,742,384	47,492,595
Nonferrous metals.....	61,488,446	38,441,130	56,710,155	33,958,295
Nonmetallic minerals.....	160,939,459	180,966,847	41,172,341	29,575,900
Chemical products.....	39,560,578	25,463,979	22,615,928	12,583,604
All others.....	73,824,704	58,414,904	58,612,853	19,066,315
Total.....	\$1,325,779,894	\$905,878,056	\$1,208,919,175	\$976,060,660
Total exports, including foreign exports.....			\$1,245,726,968	\$976,060,660

TRADE WITH UNITED KINGDOM AND UNITED STATES. During the year ended Sept. 30, 1921, 71 per cent of the Canadian imports came from the United States and 15 per cent from Great Britain. These percentages compare with 69 per cent from the United States for the same period in 1920 and 16 per cent from Great Britain.

The Canadian exports to the United States during the 12 months' period ended September, 1921, were 43 per cent, and to Great Britain 29 per cent. Exports for the corresponding period in 1920 were 42 per cent to the United States and 31 per cent to Great Britain.

The following table shows the value of Canadian imports from and exports to the United Kingdom and United States during the 12 months' period ended September, 1921:

but the majority of the Conservatives appeared to be against it. The financial interests on the whole were opposed to it and were waiting for the general conviction to spread that the experiment was a failure.

In Canada during 1921 ten railway companies built 151.26 miles of first track and 6.57 miles of second track or a total of 157.85 as compared with construction in 1920 by seven companies of 305.39 miles of first track and 31.60 miles of second track or a total of 336.99 miles. The 1921 record was the next lowest to that of 1918 and reflected the uncertainties of the Canadian railway problem. A summary of the more important construction is presented herewith based on the annual review in the *Railway Age* (New York).

In Alberta the Alberta and Great Waterways

VALUE OF CANADIAN TRADE WITH THE UNITED KINGDOM AND UNITED STATES DURING 12 MONTHS ENDED SEPTEMBER, 1921

Items	Imports for consumption from—		Canadian produce exported to—	
	United Kingdom	United States	United Kingdom	United States
Vegetable products.....	\$ 36,480,780	\$ 99,454,577	\$158,460,911	\$133,016,619
Animal products.....	2,885,968	34,733,422	81,111,870	60,223,013
Fibres and textiles.....	55,203,748	63,986,723	1,126,607	4,505,335
Wood and paper.....	2,985,566	40,439,862	21,037,075	166,406,057
Iron.....	12,566,795	150,956,378	8,043,609	8,332,967
Nonferrous metals.....	3,876,547	32,128,856	8,113,481	19,654,467
Nonmetallic minerals.....	6,905,619	162,917,800	4,308,623	15,217,490
Chemical products.....	3,940,750	18,245,144	1,392,777	8,757,264
All others.....	12,777,662	40,762,916	1,422,746	12,480,172
Total.....	\$137,623,435	\$643,625,678	\$285,017,699	\$428,593,374

FINANCE. The annual budget was presented, May 9, as follows: Receipts, \$435,360,971; expenditures, \$591,437,697. To provide for this deficit, there were taxes on playing cards, and liquors, and it was anticipated that there would be an increase on the sales tax. The debt at that time amounted to \$2,350,236,700.

RAILWAYS. As noted in previous YEAR BOOK the policy of government ownership had already been begun, the administration having taken over the Grand Trunk and Canadian Northern systems which included virtually all the roads with the exception of the Canadian Pacific. It was by no

had under construction 10.7 miles of first track. There was also in progress: Reconditioning of track, right-of-way, and drainage; new water supplies, etc., \$2,000,000, 90 per cent completed.

The British Columbia Electric built in Vancouver, B. C., 0.55 mile of first track.

The Canadian National Railways built first track as follows: In Manitoba, Amaranth north, 17.7 miles. In Saskatchewan, Thunderhill extension, 13.9 miles; Milfort northeast, 23.7 miles; Luck Lake, 15.02 miles; Jackfish Lake, 15.06 miles. In Alberta, Onoway branch, 11.9 miles and in British Columbia, Vancouver Island, 3.1 miles.

There were also under construction 6.57 miles of second track: In Alberta, between Munson and Wayne, 6.57 miles.

Important terminal, bridge, and other construction was in progress as follows: Canadian Northern: New terminal facilities and buildings at Nutana, Saskatchewan, \$411,050, completed; steel bridge at Saskatoon, Saskatchewan, six 157-ft. spans, cost \$340,000, completed; steel bridge across Red Deer river, in Alberta on Medicine Hat branch, cost \$328,000, sub-structure, completed; steel bridge across Assiniboine river at Pleasant Point, Manitoba, cost \$160,000, 15 per cent completed. Grand Trunk Pacific: new reservoir, dam, and pipe line at Melville, Saskatchewan, cost \$320,000, completed; salmon wharf and warehouse at Prince Rupert, B. C., cost \$750,000, wharf completed, warehouse 15 per cent completed. The Canadian Pacific had built first track as follows: Langdon, Alberta, north (Acme-Empress), 17.3 miles; Weyburn, Alberta (Altawan West), 17 miles. The following new or extended track work was under construction: From Russell, Manitoba, northerly, 5.5 miles; Lanigan, Saskatchewan, northeasterly, 0.5 miles; Bassano, easterly, 56 miles, of which 35 miles were graded; Rosetown, southeasterly, 45 miles, of which 41 miles were graded; Archive-Weymark, 25 miles, of which 21 miles were graded; Moose Jaw, southwest (Consul East), 60 miles, of which 31 miles were graded; Leader, southeasterly, 29.5 miles. The Central Canada laid 23 miles of first track in Alberta. The Dominion Atlantic built near Weymouth Mills, Nova Scotia, 2.5 miles of first track. The Esquimalt and Nanaimo built 4 miles of first track in Province of British Columbia, and had in progress the survey of a new line from Courtenay to Campbell river, a distance of 30 miles. There was under way the renewal of railway and highway bridge at Victoria, B. C., while for a joint bridge with the city of Victoria, to cost \$750,000, the foundations were about completed.

Grand Trunk, lines east, had in progress the renewal and widening of overhead bridge at Main Street, Toronto, at a cost of \$120,000, which was 80 per cent completed. The Kettle Valley built 2.4 miles of first track from South Penticton, B. C., to Dog Lake, 2.4 miles, and had under construction 16.7 miles, from Dog Lake to government experimental farm, 16.7 miles. The Pacific Great Eastern in British Columbia, built from Australian creek to Cottonwood river, 35 miles, and from Ft. George to Red Rock creek, 18 miles. It was also building new road from Red Rock creek to Cottonwood river, 46 miles. This line had projected new lines from Ft. George to Provincial boundary, Peach river district, 428 miles. While main line was under operation from Squamish to Quesset, 348 miles, with steel laid to mile post 364, and line graded to mile post 428. Steel had also been laid for 18 miles south of Ft. George, cost of all work, \$40,000,000, 90 per cent completed. The Quebec Central from Scott Junction, in Province of Quebec, to Diamond Junction, had built 19.33 miles of first track. The Reid-Newfoundland had built from Irvine, N. F., to Topsail, 1.5 miles of first track. The Temiskaming and Northern Ontario was building a new line from Cochrane to Abitibi Cañon, 70 miles.

GOVERNMENT. The executive power is normally vested in the King, but is exercised in his

name by the Governor-General who acts through a responsible ministry. The legislative power is vested in a Parliament of two houses, the Senate and the House of Commons. The Senators are nominated for life and the members of the House of Commons are elected by direct suffrage for five years. The Senate has 96 members and the House of Commons had at the beginning of 1920, 234 members as follows: 82 for Ontario, 65 for Quebec, 16 for Nova Scotia, 11 for New Brunswick, 15 for Manitoba, 13 for British Columbia, 3 for Prince Edward Island, 16 for Saskatchewan, 12 for Alberta, and 1 for the Yukon Territory. As the result of the election of December, 1917, the Unionists in the House of Commons numbered 151 and the opposition 81. Governor-General in 1921, the Duke of Devonshire; succeeded by Lord Byng of Vimy. The ministry formed after the fall of the Borden cabinet lasted till the election of December, 1921. It was constituted as follows: Secretary of State for External Affairs (First Minister), Arthur Meighen; Minister of Trade and Commerce, Sir George E. Foster; Minister of Finance, Sir Henry L. Drayton; Minister of Justice, C. J. Doherty; Minister of Labor, Gideon Robertson; Minister of Railways and Canals, J. D. Reid; Minister of Soldiers' Civil Reestablishment, Sir James A. Loughheed; Secretary of State of Canada (acting), Arthur L. Sifton; Postmaster-General, P. E. Blondin; Minister of the Interior and Minister of Mines, Sir James A. Loughheed; Minister of Marine and Fisheries and Minister of the Naval Service, C. C. Ballantyne; Minister of Customs and Inland Revenue, R. W. Wignmore; Minister of Immigration, Colonization, and Health, and President of the Privy Council, J. A. Calder; Minister of Militia and Defense, Hugh Guthrie; Minister of Agriculture, Simon F. Tolmie; Minister of Public Works, F. B. McCurdy; Member of Privy Council without portfolio, Edgar K. Spinney. On the eve of the elections several changes were made, which are noted below under *History*. For new ministry after the December elections see also below.

HISTORY

RELATIONS TO THE EMPIRE. Of late years the movement of self-government has greatly advanced and come to embrace all parties including the Conservatives. It does not aim in any sense at separation but only the retention of the complete control of domestic administration acquired during the war, and the gaining of a voice in the foreign affairs of the Empire. The war carried Canada far along in these respects. The last outward sign of imperial authority in Canada, with the exception of the Governor-General, disappeared when the imperial troops were recalled during the war. An illustration of the change in spirit was the new attitude toward conferring of titles. In accordance with the wishes of Parliament titles are no longer conferred. Another illustration was the movement for making the appointment of Governor-General depend on the recommendation of the Canadian government and not on that of the British government, and the requirement that he should be, if possible, a Canadian. Still other examples were the controversies over the question of jurisdiction over the Canadian army in France as between the Canadian Ministry of Militia and the British

War Office; and the demand of the Canadian government that it should be independent of the British Colonial Office. The discussion of the question of a Canadian Minister in Washington also had a bearing on the same tendency, Parliament having decided that a Canadian ambassador should be appointed at Washington. Again in 1921 the Canadian Prime Minister, Mr. Meighen, had illustrated Canada's purpose to take a direct part in foreign affairs by his protest against the renewal of the Anglo-Japanese treaty. Of the above matters the question of the ambassadorship at Washington brought on a long discussion. On the one hand it was criticized as implying that Canada was practically outside the British Empire since the naming of an ambassador was evidence of the separate standing of a nation. On the other hand it was advocated as a necessary and practical measure in view of the local matters that could be understood only by a Canadian representative, such as the questions of exportation of pulp wood from Canada to America; interchange between Canadian and American railways; the various fishery questions, etc.; in all of which it seemed unreasonable that a British ambassador should represent Canadian interests. That this tendency toward autonomy was not limited to radicals or separatists was shown by the fact that the spirit was shared by such men as Mr. N. W. Rowell, head of the Liberal-Unionist Party, Mr. Meighen, the Prime Minister, and Sir Robert Borden, former Prime Minister, the two latter having been always identified with the Conservative party. The supporters of this principle went even further than demanding a separate ambassador at Washington. They held that in imperial foreign questions where the interests of Canada were seriously involved Canada should not only be consulted, but her views should be acted upon. At present the only means of Dominion participation in imperial policies was the irregular and cumbersome meeting of the prime ministers in the Imperial Conference. The problem before Canada in 1921 as in recent years was to develop some better machinery for this purpose.

POLITICAL PARTIES. On the eve of the elections fixed for December 6, the situation in regard to political parties was as follows: For the first time in the history of Canada four political parties were prepared to enter the contest, namely, the party in power known officially as the National Liberal and Conservative party; the Liberal party; the National Progressives or Farmers' party; and the Labor group, which, however, had not yet developed a stable organization. The first of these, the National Liberal and Conservative party consisted of the old Conservatives in addition to those old Liberals who had joined it since 1911, being in harmony with the reciprocity issue of that year and the conscription issue during the war. It was in power throughout the war and successful in maintaining national unity, but the retention of war legislation after the war, various internal dissensions and its alleged subservience to the big interests made it extremely unpopular. Sir Robert Borden resigned in 1920 and was succeeded by Mr. Arthur Meighen. The Liberals of late years had been weakened by their defeat in 1911, by the split in the party in 1917 when they were divided on war issues, and the death of Sir Wilfrid Laurier. The withdrawal of the farm-

ers also decreased their strength. In the Parliament, 1917-21, they held 62 of the 65 seats from Quebec and nearly half of the seats from the three Atlantic provinces but only a few from Ontario and only two from the western provinces. They showed increased vigor after the drawing up of their new platform at the national convention of 1919 and their election of William Lyon McKenzie King as leader. The National Progressives or Farmers' party was composed largely of the farmers of the western or prairie provinces who had in recent years developed strong economic organizations and a spirit of solidarity. The Coöperative Farmers' movement was organized on a provincial scale throughout the West and spread also in the East. Strong coöperative marketing companies including the United Grain Growers and the Saskatchewan Elevator Company were extending their operations. In general the object of the Progressives or Farmers was to hold in check the power of the manufacturers, railroads and banks, but specifically there was their opposition to a protective tariff and their resentment of the rejection of reciprocity. They also bore a grudge against the party in power for certain war-time measures objectionable to the farmers. During the three years preceding the elections they had succeeded in getting the control of the governments of Alberta and Ontario, in becoming the chief political group in Saskatchewan and in making considerable progress in Manitoba. After recent by-elections they had formed a strong organization and they chose as their leader, Mr. T. A. Crerar who had been Minister of Agriculture in the Unionist government in 1917, resigning in 1919. The leading issue was the tariff. The farmers demanded a thorough cutting down of duties on the necessities of life, including foodstuffs, and on instruments of production, and in their platform they inserted a plank demanding free trade with England in five years though this afterwards seemed to the main body of them too radical a measure. The grounds of their objection to the high tariff were its tendency to depopulate the country districts and to lead to combinations and monopolies; and they pronounced the infant industry idea fallacious in view of the experience that protected industries always remained in their infancy. The Conservatives on the other hand argued in general that free trade endangered the unity and even the independence of the country, and they took advantage of the Fordney Emergency Tariff of the United States as a sign of the impossibility of friendly tariff relations with this country. The Liberals in respect to the tariff were on practically the same ground as the Farmers except for the free-trade-with-England plank; although the Liberal representatives of large business opposed any reduction of the tariff on account of the attitude of the United States. In general the Liberals looked to a tariff for revenue with incidental protection. A good deal was also made of the question of "class rule." The Conservatives accused the Farmers' movement of seeking class advantages and of aiming at a dictation over other classes without regard to justice, while the farmers on their side characterized their opponents as aiming at a class domination in their turn and of having ruled the country for a generation in the interests of lawyers and manufacturers. For the first time women were to vote in the coming election.

THE ELECTIONS. After the arrival of the new governor-general, Lord Byng of Vimy, Prime Minister Meighen reorganized the Unionist Ministry with a view to strengthening it on the eve of the general elections, the retiring members being, Sir George Foster, P. E. Blondin, J. D. Reid, J. A. Calder, R. W. Wignmore, and C. H. Doherty. Parliament was officially dissolved by the Governor-General, Lord Byng of Vimy, October 4. Thereupon the Prime Minister, Mr. Meighen, head of the Conservatives, issued the party declaration. In this he insisted that the tariff question was the chief subject before the people. The present protective tariff, he said, was vital to the industrial welfare of Canada and any revision downwards would involve the undoing of what had been accomplished toward making Canada self-sufficing in industries. The Liberal and Progressive parties on the other hand declared in favor of a tariff for revenue only, the latter favoring ultimate free trade. During the campaign the government speakers pointed to the present Emergency Tariff in the United States as an argument in favor of retaliation on the part of Canada. The Liberals demanded substantial reductions in order to diminish the high cost of living and reduce the cost of production in Canadian industries based on natural resources. They also favored a further reduction of the tariff on British goods to one-half of the general tariff by way of preference and demanded the placing on the free list of wheat, the main articles of food, farm machinery, and tools, fertilizers, and lumber, gasoline, oils, nets, and fishermen's supplies. The Progressives favored an immediate, substantial and all-round reduction of the tariff; a decrease of 50 per cent on British goods and a continued scaling down to the end that free trade between Great Britain and Canada should be insured in five years; reciprocity in natural products with the United States on the basis of the 1911 Taft-Fielding agreement.

In the elections the Prime Minister was defeated even in his own constituency, and ten members of the Cabinet lost their seats. Quebec voted solidly Liberal and fifteen seats went over to the Liberals in Nova Scotia and New Brunswick. The Liberals made heavy gains also in Ontario which was the stronghold of the government party. The election was the first one in which woman suffrage was fully employed. One woman was returned to the Canadian House of Commons for the first time, namely, Miss Agnes McPhaill, a Progressive, elected from Ontario. The elections indicated a complete change in popular sentiment, and, while the Liberals did not have a majority for their own party in the new Parliament, they were in agreement with the Progressives in the main features of their policy, and when united with them would command a large government majority for all important questions, especially that of the tariff. The main result was the complete collapse of the government party, known as National Liberals and Conservatives, who had succeeded the Unionist coalition, formed in 1917 under the pressure of war conditions. In 1917 Sir Robert Borden had secured 150 members, whereas, in the Parliament following the 1921 election his successor had only 51 seats out of a total of 235. In five of the nine provinces, namely, Quebec, Nova Scotia, Prince Edward Island, Manitoba, and Saskatchewan, not one government

supporter was elected, and in Alberta only one was elected. While the Liberals had apparently only 117 seats out of the 235, the other half was divided into two mutually hostile sections, namely, the Conservatives on the one hand and the radical Progressives on the other. The Liberal party occupied the middle ground between these two extremes. The reasons assigned for this defeat which was more complete than any other party had ever before suffered included the following: The disaffection of Quebec which for many years past had been spreading and which reached an acute phase during the crisis arising from the war; the appearance of a new and formidable group, that is to say, the Progressives who were still strong in the West where they carried everything before them; the indifference of the public to the alarm which the government attempted to arouse over the danger to the tariff; and the strong appeal made by the personality of the Liberal leader, William Lyon Mackenzie King. As a result of the elections: 117 Liberals; 65 Progressives; 51 Conservatives and 2 members of the Labor party, thus giving a strong Liberal majority. The distribution in the Parliament that had been dissolved in October was: Conservatives, 120; Liberals, 84; Progressives, 14; Independents, 4; Vacant seats, 13. The Liberal leader Mr. William Lyon Mackenzie King was chosen Prime Minister.

THE NEW MINISTRY. The new Prime Minister announced the Cabinet on December 29, as follows: Minister of Finance, William S. Fielding of Nova Scotia; Minister without portfolio and Solicitor General, Daniel D. Mackenzie of Nova Scotia; Secretary of State, A. B. Copp of New Brunswick; Minister without portfolio, John E. Sinclair of Prince Edward Island; Minister without portfolio, Raoul Dandurand of Quebec; Minister of Health and Soldiers' Reestablishment, Henri S. Beland of Quebec; Minister of Justice, Sir Lomer Gouin of Quebec; Minister of Customs and Excise, Jacques Bureau of Quebec; Minister of Marine and Fisheries, Ernest Lapointe of Quebec; Minister of Trade and Commerce, James A. Robb of Quebec; Minister of Militia and Defense and Minister of the Naval Service, George P. Graham of Ontario; Postmaster General, Charles Murphy of Ontario; Minister without portfolio, Thomas A. Low of Ontario; Minister of Railways and Canals, William C. Kennedy of Ontario; Minister of Labor, James Murdock of Ontario; Minister of Agriculture, William R. Motherwell of Saskatchewan; Minister of the Interior, Mines and Superintendent General of Indian Affairs, Charles Stewart of Alberta, and Minister of Public Works, Hewitt Bostock of British Columbia.

Mr. William Lyon Mackenzie King, who had made a special study of conditions in the United States and had pursued courses at the universities of Chicago and Harvard, was Minister of Labor for eight years in the Laurier government. See **EXPLORATION; NAVAL PROGRESS.**

CANADA, WILLIAM WESLEY. See **NECROLOGY.**

CANALS. In view of world wide economic conditions it was not reasonable to look for any projects of importance in the way of large artificial waterways in 1921. Even in the United States the work contemplated even of a minor character was drastically curtailed by the River and Harbor Bills of 1920 and 1921. In Europe

plans were discussed but without much positive action.

CAPE COD CANAL. This canal which from the time of the war had been operated by the Federal government was recommended for purchase during the year by Secretaries Weeks, Denby, and Hoover, who informed Congress that \$11,500,000 would be a reasonable price for the property. The three secretaries made a careful investigation of the acquisition of the Cape Cod canal which resulted in the conclusion that government control of it was desirable and the price of \$11,500,000 was reasonable.

Recommendation that the Federal government acquire the property was accordingly transmitted to Speaker Gillett together with an agreement to be ratified by Congress calling for the transfer of the canal property from the Boston, Cape Cod

& New York Canal Co. to the Federal government.

Of the \$11,500,000 purchase price, \$5,500,000 would be paid in cash while for the remainder the government would assume the outstanding bonds.

Canals at Sault Ste. Marie. At these important waterways there was a decrease of traffic during 1921. The United States Canal at Sault Ste. Marie, Mich., was opened April 7 and closed Dec. 24, 1921, thus making the navigation season 262 days. The Canadian Canal was opened April 9 and closed Dec. 16, 1921; giving a season of 252 days.

A statistical report of the lake commerce through the canals at Sault Ste. Marie, Michigan and Ontario for the season of 1921 is abstracted in the accompanying summaries:

SUMMARY			
		U. S. Canal	Can. Canal
Vessel Passages.....	Number	8,961	3,886
Registered Tonnage.....	Net	28,398,403	3,787,837
Freight—			
East Bound.....	Short tons..	30,460,755	1,652,493
West Bound.....	Short tons..	15,795,769	350,237
Total Freight.....	Short tons..	46,256,524	2,002,730

		EAST BOUND		
Articles		U. S. Canal	Can. Canal	Total
Lumber.....	M. ft. B. M.	180,645	25,661	206,306
Flour.....	Barrels..	5,750,240	4,467,065	10,217,305
Wheat.....	Bushels..	182,199,399	15,515,611	197,715,010
Grain, other than wheat.....	Bushels..	69,494,033	26,200,231	95,694,264
Copper.....	Short tons..	24,542	6,991	31,533
Iron Ore.....	Short tons..	22,457,888	127,615	22,585,503
Pig Iron.....	Short tons..	.....	526	526
Stone.....	Short tons..	9,000	15,910	24,910
General Merchandise.....	Short tons..	56,877	41,247	98,124
Passengers.....	Number..	11,640	21,375	33,015

		WEST BOUND		
Coal, soft.....	Short tons..	12,414,829	92,198	12,507,027
Coal, hard.....	Short tons..	2,245,230	10,898	2,256,128
Iron Ore.....	Short tons..	9,820	.....	9,820
Mfgd. Iron and Steel.....	Short tons..	31,187	7,322	38,509
Salt.....	Short tons..	57,098	5,215	62,313
Oil.....	Short tons..	301,632	1	301,633
Stone.....	Short tons..	465,996	2,541	468,537
General Merchandise.....	Short tons..	289,977	232,062	502,039
Passengers.....	Number..	12,264	21,342	33,606

In 1921 there was generally speaking decreased volume in most lines of freight passing through the canals as compared with 1920, as will appear in the comparative statement given herewith of

lake commerce through both canals of Sault Ste. Marie. Naturally the decrease in copper and iron ore stands out conspicuously.

		Total Traffic for		Increase or Decrease	
Items		Season 1920	Season 1921	Amount	Per Cent
Vessels:					
Steamers.....	Number..	16,336	10,779	5,557	24
Sailing.....	Number..	1,354	538	816	60
Unregistered.....	Number..	1,157	1,530	373	32
Total.....	Number..	18,847	12,847	6,000	33
Lockages.....	Number..	13,193	9,653	3,540	27
Tonnage:					
Registered.....	Net..	58,194,083	32,184,240	26,009,843	45
Freight.....	Short tons..	79,282,496	48,259,254	31,023,242	39
Passengers.....	Number..	68,451	66,621	1,830	3
Lumber.....	M. ft. B. M.	192,854	206,306	13,452	7
Flour.....	Barrels..	7,477,533	10,217,305	2,739,772	37
Wheat.....	Bushels..	143,456,487	197,715,010	54,258,523	38
Grain.....	Bushels..	51,630,135	95,694,264	44,064,129	85
Copper.....	Short tons..	51,545	31,533	20,012	39
Iron Ore.....	Short tons..	56,780,498	22,595,323	34,185,175	60
Mfd. & Pig Iron.....	Short tons..	76,194	39,035	37,159	49
Coal, soft.....	Short tons..	12,096,993	12,507,027	410,034	3
Coal, hard.....	Short tons..	2,059,266	2,256,128	196,862	10
Salt.....	Short tons..	99,208	62,313	36,895	37
Oil.....	Short tons..	353,489	301,633	51,856	15
Stone.....	Short tons..	563,271	493,447	69,824	12
General Mdee.....	Short tons..	556,110	600,163	44,053	8

NEW YORK BARGE CANAL. By virtue of an Act of Congress signed by President Wilson on Feb. 28, 1921, the United States Government relinquished operation of the fleet of barges on the New York State Barge Canal. The Inland and Coastwise Waterways Service of the War Department, which had control of the operations on the canal, then offered for sale most of the fleet built for the canal, which included fifteen self-propelled barges, thirty-eight steel cargo barges, sixteen concrete cargo barges, three wooden barges, three small tugs, and ten old wooden barges. The Government, however, retained about one-quarter of its fleet for operation on other waters still under its jurisdiction. A New York City syndicate purchased for \$1,000,000 a large part of the equipment, its bid also covering the purchase of the entire remaining equipment, on a deferred payment basis over a period of seven years. The initial payment was \$75,000 with subsequent payments of \$100,000 on Jan. 1, 1922, and \$75,000 on July 1, 1922, the balance to be paid in equal monthly installments over the remainder of the period of seven years, deferred payments bearing interest at 5 per cent.

Another evidence of the possible increased use of the barge was the completion and delivery in New York City of the first of five barges, each of 1500 gross tons cargo capacity and 10-ft. draft. This barge built in Duluth arrived at New York City, via the New York State Barge Canal, loaded with 83,000 bu. of oats. The five barges were to be 254 ft. long, with 36-ft. beam and 14-ft. depth, having a cargo capacity of 1500 gross tons at a 10-ft. draft and 1750 gross tons at 11-ft. draft. They were to be driven by Diesel oil engines. It was proposed to operate these and other barges in a regular service between New York and Buffalo, largely devoted to grain carrying. In addition a number of the large industrial companies were seriously considering the question of operating their own barges on the canal.

CHESAPEAKE AND DELAWARE CANAL ENLARGEMENT. During the year work was started on the first construction contract for the enlargement of the old Chesapeake and Delaware Canal between Delaware City on the Delaware river and Chesapeake City on Chesapeake Bay. This contract was for excavating 675,000 cubic yards of high land, but the entire project which contemplated making a sea level canal 90 feet in width would involve some 6,000,000 cubic yards of dry excavation and 10,000,000 cubic yards of dredging for which future appropriations would have to be made by Congress.

The original Chesapeake and Delaware canal, built 1824-29, was a lock canal of 12 feet depth and 24 feet lock width, while the new canal, to be known officially as the "Inland Waterway from Delaware River to Chesapeake Bay, Delaware and Maryland," was to have the same location but was to be a sea level canal, doing away with the three locks constructed in 1850 with a width of 24 ft. and a length of 220 ft. which had served to restrict navigation. The summit level of these locks was 15 ft. above mean low tide, while the mean ranges of tide at Delaware City on the east end of the canal and at Chesapeake City on the west end were respectively 6 ft. and 2 ft. The River and Harbor Act of March 2, 1919, carried an appropriation for the purchase of the canal company's property at the agreed price of \$2,514,-

289.70, and after condemnation and other proceedings the United States took possession of the canal and appurtenances Aug. 13, 1919. The Government upon taking charge straightway abolished all tolls, making the canal a free waterway. The project adopted provided for a lockless, tide level canal 12 ft. deep and 90 ft. wide on the bottom, estimated to cost \$12,000,000. No appropriations were made in the River and Harbor Acts of 1920 and 1921 for further work and the contract referred to was carried with the unexpended balance from 1919.

SUEZ CANAL. Naturally during the World War the Suez canal was as important a military consideration as it is a commercial highway in normal times. Accordingly then it was decided to deepen and enlarge the waterway and this was vigorously prosecuted so that by 1921 the depth of 39.4 feet aimed at was obtained for a distance of 80.8 miles leaving 18.6 miles which was 34.4 feet deep. The shallow portion was toward the Suez end, where there was a tide of 3.28 to 5.91 feet so that at certain stages of the tide there was full depth through the canal. There was practically no tide at the Mediterranean end.

The minimum width at bottom was 147.6 feet, while the ordinary width of 197 to 246 feet was increased to 325 to 360 feet at curves or special places. The improvements included lining much of the canal banks with stone wall to prevent washing, and this wall was set at the full standard width, so that in places dredging was still required to give the projected cross section of water at all points. The breakwater at Port Said was extended so as to prevent much of the silting up of the entrance. In 1921 the canal was in an efficient state and there was practically 40 feet of water available.

The traffic before the war was about 20 million tons annually. It fell during the war to 13 to 14 millions and in 1921 was about 17 millions.

CANARY ISLANDS. A group of islands off the northwest coast of Africa belonging to Spain. Area, estimated at from 2808 square miles to 3342 square miles. The population Dec. 31, 1910, was 444,016; estimated Dec. 31, 1918, 513,959. The capital, Santa Cruz de Tenerife, had a population in 1910 of 63,004; estimated Dec. 31, 1918, 72,871. The next largest city is Las Palmas with a population estimated, Dec. 31, 1918, at 69,270. There is an institution for higher education on the islands under the University of Seville. There is regular steamship communication with Spain and a wireless establishment. The chief exports are tomatoes, potatoes, bananas, and wheat.

CANCER. Despite the praiseworthy activities of the American Society for the Prevention of Cancer there is much pessimism as to the outcome both of laboratory research and sociological efforts in solving the problem of cancer as a racial evil. Dr. Jonathan Wright in the *Medical Record* for Nov. 26, 1921, page 964, states that it would be foolish to deny that ground has been gained since the spectacular opening of the cancer campaign a decade ago. No doubt many an individual has profited or will profit from its propaganda but no doubt the totality of lives thus saved will not more than equal the annual increment of increasing incidence. Our knowledge of the body cell has increased without illumination of the phenomenon of the cancer cell. If cancer were a

relatively new disease the crusade would doubtless prove more profitable and this would be the case if it were limited to the mammalia; but the disease may have existed for millions of years among the cold-blooded animals, for cancer-like growths are present even in fishes and frogs. Even in plants there are cancer-like growths, so that the mystery of the disease may be merged in the mystery of life itself.

During the past few years there is an increasing tendency among hard-headed surgeons—men who swear by the knife—to strive to modify the peculiar and little known predisposition to the disease through which one man contracts it while another under the same circumstances escapes. Dr. Hochenegg of Vienna, who has removed over a thousand cancers of the rectum, has carefully investigated the lives and surroundings of his patients both before and after operation, and goes so far as to alter the entire mode of life. He carries his precautions to such an extreme that he does not allow them to live under the same roof or come in personal contact with a cancer patient, yet he apparently does not believe that the disease can be communicated. There may be something in the soil, or drinking water, or food of the vicinity which influences the disease unfavorably.

Another extensive operator, Dr. Pauchet of Amiens, France, is firmly convinced that habitual intestinal obstruction is an important predisposing factor in the genesis of cancer, not only in the alimentary canal but in more remote localities as the breast. In his routine examinations including the use of the x-ray, he finds this condition common and advises people of the cancer age to keep the bowels open by the use of mineral oil. He claims that the low form of inflammation which usually precedes the development of cancer of the breast disappears after overcoming chronic intestinal stasis.

Despite the fact that pathologists deny the contagiousness or parasitic nature of cancer numerous clinicians continue to claim the contrary, and some claims have been made that arsenic and other drugs which destroy animal parasites in the blood can act favorably in cancer. Dr. L. Smith, the well-known gynecologist of Montreal, earnestly begs his colleagues to give their patients after operation drugs known to have an action against protozoan parasites such as arsenic, mercury, and iodine.

Occasional remarkable individual results from certain drugs, both inorganic and organic, the latter including a variety of albuminous substances, have been explained by the fact that all of these substances are in the so-called colloidal or noncrystalline form. It is realized that colloids have remarkable powers over many kinds of disease but admitted that such action is inconstant and far from dependable; while there is danger of causing shock as it usually is necessary to inject them into the veins. Dr. Bier, the well-known Berlin surgeon, injects pig's blood into the tissues while others inject extracts from the patient's own tumors after extirpation. It is to be hoped that at some future day we may be able to foretell by some cutaneous or other reaction, which form of colloid substance is best suited to a given case; also that some of these remedies may do good when associated with personal hygiene, radium, x-rays, etc.

According to certain insurance statistics there has been no increase of cancer mortality in the United States for a few years past which holds out a little encouragement, but we still have to learn of the incidence by decades. In 1921, 85,000 deaths were reported as against 82,000 in 1920. If we proceed by analogy the curve of cancer incidence instead of increasing steadily and moving in an inclined plane will represent a peculiar curve in which the rate of increase will eventually be very slight and ultimately attain equilibrium. It is possible that this period is already at hand. Whether there will ever be a spontaneous decline is very doubtful, but if the disease incidence is in equilibrium it will be a relatively simple matter to determine the fraction of decline due to the activities at work against individual and racial cancer. The present status of radiation in cancer is discussed under RADIUM.

CANDIA. See CRETE.

CANNING INDUSTRIES. See HORTICULTURE.

CANTOR, JACOB AARON. Lawyer and politician of New York State, died, July 2. He was born in New York City, Dec. 6, 1854. After a high school education, he graduated at the New York University Law School in 1875. After admission to the bar in 1876, he practiced law in New York City. He was a member of the State Assembly after 1885, and sat in the Senate from 1889 to 1890, being the democratic leader in that body in 1893-94. He was president of the State Senate and acting lieutenant-governor. From 1902 to 1904 he was president of the Borough of Manhattan, having been elected on a reform ticket. He was chairman or member of many important State commissions. In 1913 he was elected to Congress and served until 1915. He was appointed president of the department of taxes and assessments of Greater New York, Jan. 1, 1918.

CAPE COD CANAL. See CANALS.

CAPE COLONY. See CAPE OF GOOD HOPE PROVINCE.

CAPE OF GOOD HOPE PROVINCE. One of the four constituent provinces of the Union of South Africa, occupying the southern part of the country and formerly known as Cape Colony; area, 276,966 square miles with a population at the census of 1911 of 2,564,965 including 582,377 European and 1,982,588 colored. In 1918 the European population was placed at 618,825, of whom 311,312 were males and 307,513 were females. The movement of population in 1919 was as follows: Births, 47,770; deaths, 45,784; marriages, 14,227. The colony is divided as follows: Cape Colony proper, East Griqualand, Tembuland, Pondoland, Transkei, Walfish Bay, and Bechuanaland. Capital, Cape Town, with a white population in 1918 of 99,693. Other towns with the populations on that date are: Kimberley, 17,188; Port Elizabeth, 23,339; East London, 17,592. The native races are mainly Hottentots, Malays, Kaffirs, Fingoes, and Bechuanas, but the largest element is of mixed race and, according to the census of 1911 numbered 415,282. On June 30, 1918, the aided schools numbered 4794 with 9672 teachers, 121,910 European pupils, and 149,985 non-European pupils. The trade between the Cape of Good Hope and the United Kingdom, according to the provisional figures of 1920 was: Exports, to the United Kingdom, £12,649,000; imports, from the

United Kingdom to the Cape, £25,574,673. Of the latter £24,133,000 consisted of British products and manufactures, the rest being foreign and colonial goods. The colony was merged in the Union of South Africa, May 31, 1910. Executive power is vested in the governor and in an executive council of office-holders appointed by the crown.

On the fall of the old ministry a new cabinet under General Jan Smuts was announced early in March. His colleagues were: F. S. Malan, Mines and Industries; H. Burton, Finance; Sir T. Watt, Public Works, Telegraphs and Posts; Sir T. Smartt, Agriculture; Mr. Gagger, Railways and Harbors; Patrick Duncan, Interior, Public Health, and Education; Colonel Reitz, Lands. See SOUTH AFRICA, UNION OF.

CAPE VERDE ISLANDS. A group of 14 islands off the west African coast, belonging to Portugal, with a total area of 1516 square miles, or according to some authorities 1480 square miles, and a population at the census of 1912 of 149,793 of whom 4799 were white. The chief products are coffee, medicinal plants, hides, and millet. Imports in 1919, 8,493,802 escudos; exports in 1919, 749,709 escudos. Capital, Praia. For further statistics see preceding YEAR BOOK.

At the close of the year the residents were appealing to foreign countries for relief from famine conditions which had prevailed throughout the year. It was reported that in the summer people were dying in the town of Praia at the rate of two hundred a day and that the population of certain parts of the island had been reduced one-third. The famine was attributed to a severe drought which had lasted for three months. Efforts were being made to induce the Portuguese government to afford the means for the execution of a plan of irrigation which would improve conditions.

CARBONELL, LUIS GARCIA Y. See NECROLOGY.

CARINTHIA. Formerly a crownland of the kingdom of Austria in the Austro-Hungarian empire; after the collapse of the empire, a province of the new republic of Austria; bounded on the west by Tirol, on the east by Styria, on the north by Salzburg and Styria, and on the south by Venetia, Görz, and Carniola. Area, 3678 square miles including the district which decided for Austria in the plebiscite of Oct. 13, 1920; population, at the census of 1910, 396,200; at the census of 1920, 369,401. In 1910 the German-speaking element numbered 304,287. The majority are Catholics. The capital is Klagenfurt, with a population in 1910 of 28,911, and on Jan. 31, 1921, of 26,111. The crownland was formerly represented by 10 members in the Lower House of the Austrian parliament.

CARLISLE INDIAN SCHOOL. See INDIAN TRAINING AND INDUSTRIAL SCHOOL.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE. See INTERNATIONAL PEACE AND ARBITRATION.

CARNEGIE FOUNDATION. See UNIVERSITIES AND COLLEGES.

CARNEGIE INSTITUTE OF TECHNOLOGY. A nonsectarian institution of technical education at Schenley Park, Pittsburgh, Pa.; founded in 1900. The enrollment for the fall of 1921 was 2451; and in the summer session of 1921 there were 588 students. The faculty numbered 296. The income for the year was \$1,320,000. The students have access to the Carnegie Library

which contained 450,000 volumes and there is also a branch library on the campus containing between 10,000 and 11,000 volumes. President, Arthur Arton Hamerschlag. See PAINTING AND SCULPTURE.

CARNEGIE INSTITUTION AT WASHINGTON. The year marked the completion of twenty years' existence of this organization, whose purpose has been to encourage in the broadest and most liberal manner investigation, research, and discovery, and the application of knowledge to the improvement of mankind. The work of the institution during the year touched upon nearly all of the principal fields of research. Important discoveries in astronomy were made by means of the 100-inch Hooker Telescope at Mount Wilson Observatory, Pasadena, Calif., and the unusual skill of Dr. A. A. Michelson of the University of Chicago. Measurement of the dimensions of other stars followed that of the star Betelgeuse and by the use of the interferometer, the way has been opened, it is said, for corresponding observations on a group of stars which seemed heretofore to be entirely out of range. The results already obtained, it is thought, furnish a new starting-point for further investigations concerning the nature of the universe.

In November the non-magnetic ship *Carnegie* completed its sixth cruise. Launched in 1909 the vessel has voyaged nearly 300,000 miles, covering the principal areas of the great oceans and securing previously unavailable data on magnetic conditions and variations. Begun in this year the Department of Experimental Evolution and the Eugenics Record Office have come to function as a separate unit known as the Department of Genetics. The change enables the biological studies of inheritance based upon investigation of many groups of plants and animals to bear more directly on studies of human genetics. During the year a chemical laboratory was erected for the Department of Botanical Research at Carmel, Calif. Its work has been devoted to investigation in the field of chemical and physical research, with view toward obtaining additional information concerning the basis of plant activities. Considerable valuable material has been secured by the expedition into the region of the ancient Maya civilization of Central America.

The annual report of President John C. Merriam shows receipts for the year amounting to \$1,513,924.63, and an aggregate total for the twenty years of its existence of \$20,486,013.89. Of the twenty-three authorized volumes, eighteen were published during the year, and twenty additional volumes are now in press. Record was made of the death of Edward Douglass White, Chief Justice of the Supreme Court of the United States. He was a member of the original Board of Trustees of the Institution and took a vigorous part in its affairs for several years.

CAROLINE ISLANDS. See GERMAN NEW GUINEA.

CARRASCO, JOSE. Former vice-president of Bolivia, died at La Paz, Bolivia, May 25. He was born at Totora, Bolivia, Nov. 4, 1862, and after an education in the national schools, studied law and was admitted to the bar in 1885. In 1893 he became the editor of a newspaper at Cochabamba, and in 1899 while continuing this work became a professor of law at the university. After serving as a governor of Oruro for two years

he was appointed minister of justice and of the interior in 1902 holding this office until November, 1903. He was again in the ministry in 1908 and in 1910 was elected president of the Chamber to which office he was four times reelected. He was elected vice-president of Bolivia May 4, 1913. Meanwhile in 1904 he had founded at La Paz the newspaper, *El Diario*.

CARTAILHAC, EMILE. French anthropologist, died, November 25. He was a leading authority on prehistoric life, especially in the palæolithic age. He was born at Marseilles, France, Feb. 15, 1845; studied at the lycée at Toulouse; pursued a law course, and was admitted to the bar in 1867, but soon abandoned the law for the study of human palæontology and classical or historical archaeology. At the age of twenty-five he purchased a periodical which regularly supplied data for the study of the primitive and natural history of man, and which was subsequently merged with other scientific periodicals. For forty years preceding his death he was professor at the university at Toulouse. His principal scientific publications were as follows:

Les Ages Préhistorique de l'Espagne et du Portugal (1886); *La France Préhistorique d'après les Sépultures et les Monuments* (1889); *Les Monuments Primitifs des Isles Baléares* (1892); and as collaborator on the excellent "Memoirs" issued by the Prince of Monaco under the auspices of the Institut de Paleontologie Humaine of Paris, *La Caverne d'Altamira* (1906); and *Les Grottes de Grimaldi* (1912). From 1889 to 1895 he was editor of *L'Anthropologie*.

CARUSO, ENRICO. Celebrated Italian dramatic tenor, died at Naples, August 2. He was born at Naples, Feb. 25, 1873, and began to sing at the age of eleven in various clubs of his native city. He attracted the public attention in 1896 on his appearance in *Traviata* at Naples and was engaged soon afterwards at foreign capitals, including St. Petersburg, Buenos Aires, London, Rome, and New York. In 1903 he came to the United States and was received with great applause on his appearance at the Metropolitan Opera House in New York, on November 23 of that year. His repertoires included over forty operas, chiefly Italian, but he also was successful in French operas. For many years he was the chief attraction on the operatic stage of New York and at the time of his death, he was plainly the most popular singer in the United States. In later years he made his home in Florence, Italy. See **MUSIC**.

CARUSO AMERICAN MEMORIAL FOUNDATION. See **MUSIC, General News**.

CARY, ANNIE LOUISE (Mrs. CHARLES M. RAYMOND). Singer, died at Norwalk, Conn., April 3. She was formerly one of the most admired prima donnas in her time, but for many years had been in retirement. She was born in Wayne, Maine, Oct. 22, 1841, and graduated at Gorham Female Seminary, 1862. She then studied in Boston and later in Milan. Her first appearance in Italian opera was at Copenhagen. This was followed by tours under Strakosch and Mapleson. She sang with great success in Stockholm, Paris, Brussels, and London. In 1870 she made her début in New York and immediately won a remarkable success with the public with whom for twelve years she was a favorite. In 1875-77 she made brilliantly successful tours in Russia. During her prime she was the leading singer of mezzo-soprano

and contralto rôles. In 1882 she married Charles M. Raymond of Brooklyn, and after that retired from public life, appearing only occasionally for charity.

CARYLL, IVAN. Composer of musical comedies, died in New York City, November 29. His real name was Felix Tilkin and he was born in Liège, Belgium, 1862. He wrote in 1886, *The Lily of Leonville*, his first production, and this was followed by a long succession of musical comedies, including: *Little Christopher Columbus*, *The Shop Girl*, *The Duchess of Dantzic*, *The Pink Lady*, *The Earl and the Girl*, *The Toreador*, *Our Miss Gibbs*, etc.

CASE, WILLIAM SCOVILLE. Judge, died, February 28. He was born at Tariffville, Conn., June 27, 1863; graduated at Yale, 1885; was admitted to the bar in 1887, and was a member of the Connecticut legislature, 1887-89. After serving as judge in the Connecticut court of common pleas, he was made judge of the superior court of Connecticut, Oct. 1, 1901. He held that office until 1919 when he was made associate justice of the supreme court of errors. His writings include works on local history and one entitled *Forward House* (1895).

CASELLA, ALFREDO. See **MUSIC, Artists, Instrumentalists**.

CASE SCHOOL OF APPLIED SCIENCE. A college of engineering at Cleveland, Ohio; founded in 1881. The enrollment for the year 1921 was 668 students, and for the summer session of 1921, 225. There were 69 members of the faculty. The productive funds amounted to \$2,678,138, and the income for the year \$295,219. The library contained 15,239 volumes. President, Charles S. Howe, Ph.D.

CASSEL, Sir ERNEST. See **NECROLOGY**.

CATALAN LANGUAGE. See **PHILOLOGY, MODERN**.

CATHOLIC UNIVERSITY OF AMERICA. A Catholic institution of the higher education at Washington, D. C.; founded in 1867. It includes schools of graduate sciences, law, philosophy, and science and also a summer school and with it are affiliated the St. Paul Seminary at St. Paul, Minn.; the Institute of Scientific Study in New York; Mount St. Mary's Seminary of the West at Cincinnati, Ohio; and the following institutions situated near the university: College of St. Paul the Apostle; Holy Cross College; Franciscan College; Apostolic Mission House; Trinity College; College of the Immaculate Conception; Catholic Sisters College; and Mount St. Augustine's College. The enrollment for the fall of 1921 was 1,333 and for the summer school 558. The faculty numbered 82. The productive funds amounted to \$2,670,441 and the income to \$344,549. There were 136,000 volumes in the library. Rector, Rt. Rev. Thomas Joseph Shahan.

CATRON, THOMAS BENTON. United States Senator, died, May 15. He was born in Lafayette County, Mo.; and began the practice of law in New Mexico in 1887. He served for several terms in the New Mexican legislature, and was delegate from the Territory to Congress, 1895-97. On March 27, 1912, he was elected to the United States Senate for the term expiring March 4, 1917. In politics he was a Republican.

CATTLE. See **LIVE STOCK; DAIRYING; VETERINARY MEDICINE, etc.**

CATTLE TICK ERADICATION. See **VETERINARY MEDICINE**.

CAUCASUS. The region comprising the isthmus separating the Black sea and the Sea of Azov from the Caspian sea in southeastern Europe; formerly a general government of the Russian empire divided into the two districts of Ciscaucasia and Transcaucasia, with an area of 181,173 square miles and an estimated population, Jan. 1, 1915, of 13,299,100. For further statistics see preceding YEAR BOOKS. Since the beginning of 1919 Transcaucasia has been divided into the three small republics of ARMENIA, AZERBAIJAN, and GEORGIA. See these titles.

CELEBRATIONS. In the United States the tercentenary celebration of the landing of the Pilgrims at Plymouth was continued on certain nights in July and August by a "wonderful, interesting and historic pageant" called "The Pilgrim Spirit," which was written and staged by Prof. George P. Baker of Harvard University. It consisted of five episodes and more than twenty scenes in which 1000 costumed actors and a trained chorus of 300 voices participated. The pageant presented not only the famous incidents in Pilgrim life in Plymouth but illustrated dramatically the growth, meaning, and influence of the ideas which inspired the Pilgrim Fathers. August 1 was designated as Plymouth day and in honor of the presence of President Harding, a civic, military, and naval parade was also held.

Other celebrations included:

That held in various cities in Florida, and notably in St. Augustine, of the 100th anniversary of the purchase of Florida from Spain by the United States. On July 10, 1821, the Spanish flag at Fort Marion in St. Augustine gave way to the Stars and Stripes and Don Jose Coppinger, the Spanish governor, transferred the title of the Spanish properties in Florida to Col. Robert Butler, U. S. A., designated by President Monroe to represent the United States.

An interesting event was the celebration during the week beginning with August 6 in the town of Penetanguishene, Ontario, of the coming of Samuel de Champlain, the first white man to visit the Indian tribes in Canada. Besides a series of pageants depicting the great events in the history of this land before and after the coming of white men, supreme chieftains of the Huron and Iroquois tribes, whose ancestors carried on a feud for centuries in what is now the Province of Ontario, with ancient symbolic ceremonies, buried the hatchet forever and smoked the pipe of peace.

On September 6, the more than 100 years of peace between Canada and the United States, a century without fortifications or armies along 3000 miles of border, was commemorated by the dedication of the Peace Portal, a huge arch of steel and cement on the international boundary line in Blaine, Washington. This Portal rests half on Canadian and half on American soil. It is in the Grecian Doric style. On the plinths on the south side are inscribed the words: "Children of a Common Mother"; on the north side the legend runs: "Brethren Dwelling Together in Unity." On the interior, below one of the doors, are inscribed the words: "Open For One Hundred Years"; below the other door are: "May These Doors Never be Closed." On either side of the Portal a park has been designed. The structure bears two flag poles, from one of which the flag of Great Britain will fly, and from the other, the

Stars and Stripes. More than 450 electric lights will be used to illumine the Portal at night.

The centenary of the admission of the State of Missouri into the Union was celebrated with appropriate ceremonies and conspicuously so in St. Louis on October 5 by the Veiled Prophet parade. A commemorative 50-cent piece was issued in honor of the event in accordance with an act of Congress. The obverse bears a bust of a trapper, facing to the left, in coonskin cap, and dividing the dates, 1821 and 1921, in the field. The reverse shows a settler, garbed in buckskin, and an Indian chief standing together in friendly attitude, the trapper holding his gun in his right hand. The chief holds the calumet of peace in his right hand.

The centenary anniversary of the independence of Peru was elaborately celebrated for a week in July, beginning on the 24th. Envoys from thirty nations participated in the event. The United States was represented by a special commission of seven delegates of which Albert Douglas was the chief, and a special naval squadron of three battleships was also sent from this country. An interesting feature was the commemorative offerings made by the foreign colonies in Lima. The French offering was a heroic bronze statue representing Liberty, to be erected in the Plaza de Armas. The Italian colony offered a museum of fine arts to be built on the Plaza de La Exposicion. The German colony presented a cement and granite clock tower to be placed in the centre of the Parque Universitario. The British and American colonies in Lima purchased Belavista Hospital at an initial cost of \$75,000, to be conducted by the Methodist Episcopal Mission in Peru.

The hundredth anniversaries of the independence of Costa Rica, Guatemala, Honduras, Nicaragua, and Salvador were celebrated in these Central American Republics during September. In Costa Rica a statue to Juan Mora Fernandez, the founder of the Republic, was unveiled, and an exposition of Spanish products and of artistic and historic objects was held. In Guatemala a Pan American Students Congress and various expositions were held, and in Honduras a prominent feature was the publication of an Anthology of Central American Poets. A brilliant reception was held in Washington in honor of the Centenary in the Pan American Building on September 15.

Also in Mexico the centenary of its independence was celebrated during September. In Mexico City, September 27 was the important date, and on this occasion a military parade of 16,000 soldiers marched through the city over the same route taken by the conquering forces at the ending of the Spanish rule. Throughout the republic numerous celebrations commemorating the national independence were held until the middle of October. Many countries sent special envoys to Mexico in honor of the event. The United States was not officially represented at any of these ceremonies.

CELTIC LANGUAGE. See PHILOLOGY, MODERN.

CENSUS. The period defined by law for the Fourteenth Census comprised three years beginning June 30, 1919, and the close of the fiscal year on June 30, 1921, therefore marked the end of the second year of that period. The scope of the census according to the law covers population,

agriculture (including irrigation and drainage), manufactures, forestry and forest products, and mines and quarries; and the organization of the Bureau includes three main divisions which are engaged primarily in the work of taking the census and compiling its results, namely, the Divisions of Population, of Agriculture, and of Manufactures. The census of population is taken by the Division of Population; the censuses of agriculture, irrigation, and drainage by the Division of Agriculture; and the censuses of manufactures, forestry and forest products, and mines and quarries (including oil and gas wells) by the Division of Manufactures. Population returns by States were included in the preceding YEAR BOOK. Results of the census down to the close of 1921 will be found in the articles, UNITED STATES, VITAL STATISTICS, and AGRICULTURE.

CENSUS OF AGRICULTURE. See AGRICULTURE.

CENTRAL AMERICAN FEDERATION. A provisional Federal Council, representing the states of Honduras, Guatemala, and Salvador entered upon its functions, October 10. This new Federal state comprised the three republics above mentioned and was expected to include the others, in which the Unionist party had already developed considerable strength. The agreement of union was signed early in January at San José, Costa Rica, by these three states and by Costa Rica, but the last-named decided not to enter the union, the Costa Rican National Assembly having rejected the proposal by a vote of 20 to 19. The capital of the Federation was to be Tegucigalpa in Honduras. The territory within the Federation was placed at about 100,000 square miles and the population at about 4,000,000. This brought to a climax the aspirations of these three states for the last 80 years. The government provided for by the treaty of union was formed along the lines of the government of the United States, but in respect to the executive followed the Swiss model. The constitution was approved by the constituent assembly at Tegucigalpa in September. Under it each state governs itself in respect to local affairs, retaining those powers not specifically delegated to the Federation. The executive power is vested in a Federal Council consisting of one delegate popularly elected in each state for the term of five years. The same number of alternates are elected at the same time but they have no vote in the Council, performing only an advisory function. The Federal Council chooses from its own members one President and one Vice-President for the year. The legislative power is vested in two houses, namely, a Senate and a House of Deputies, the former consisting of three senators from each state elected for six years by the congress of that state, and the deputies consisting of representatives popularly elected at the ratio of one to every 100,000 inhabitants, the term of deputies being four years. Judicial power lies in a supreme court of seven members and in other courts created by the law. A flag had been adopted consisting of three broad lateral stripes, one white between two blue ones. Spanish was to be the common language of the Federation and education was to be free and compulsory. The Australian ballot was adopted for elections.

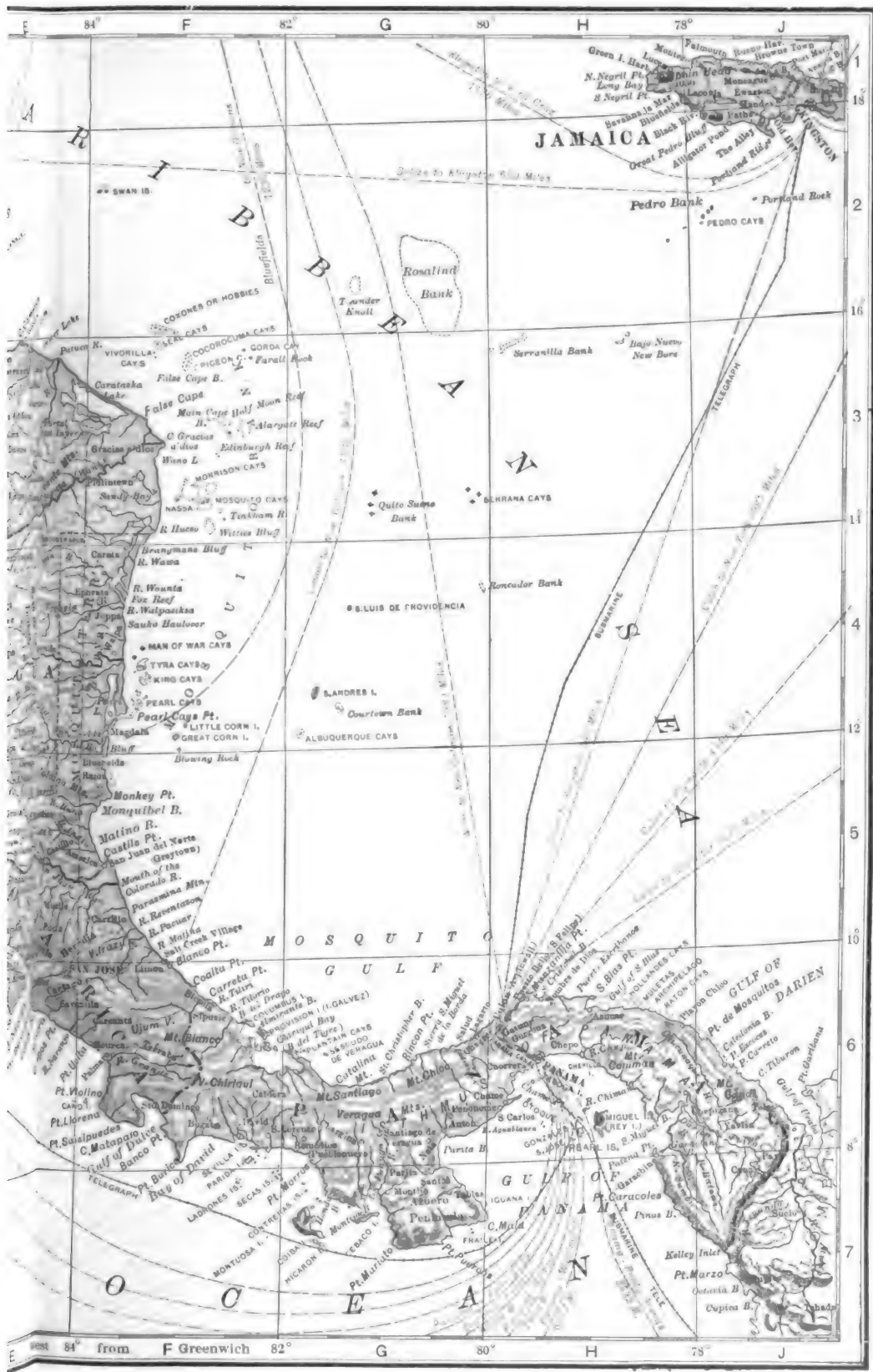
As to customs and the banking system the following programme was indicated:

"The Federation will establish a uniform customs tariff and manage the customhouses, although export taxes are reserved to the States. There will be free trade between the States. A uniform monetary and banking system will be established and the Federation will enact commercial codes, and patent, copyright, and trade-mark laws. The States will continue to observe the treaties at present in force between them and other countries until the Federal Government shall have secured the amendment, substitution, or abrogation of these treaties. The States will also continue the service of their present foreign debts under the supervision of the Federal Government, which obligates itself to see that the service of these debts is continued, and the revenues set aside for this service are applied thereto. New foreign loans can only be made by the States, with the approval of the Congress of the Federation, and Federal foreign loans will require to be ratified by two-thirds of the Federal House of Deputies and three-fourths of the Senate. Pending the inauguration of the proposed Customs Union, announced for Feb. 1, 1922, it is understood that the constituent States will continue to collect import duties on foreign goods according to the tariff schedules which have been in effect in each State hitherto."

On November 4 it was announced that the new federation of Salvador, Honduras, and Guatemala had begun to establish its government, councilors representing the respective states having been elected along with 15 deputies, and 15 substitutes for the legislative body of the new combination.

CEYLON. A large island in the Indian ocean off the southern end of Hindustan constituting a British colony. Area, 25,481 square miles; population, 1911, 4,110,367, estimated in 1919 at 4,757,596. The population in the latter year was distributed according to race as follows: Singhalese, 2,989,380; Tamils or Tamali, 1,414,649; non-malay Mohammedans, 276,631; Malays, 14,105. Other races include the Veddhahs or aborigines, 16,146. Marriages registered in 1919 numbered 18,870 (exclusive of Mohammedan marriages); births, 161,405; deaths, 168,323. The distribution according to religion in 1919 was: Buddhists, 2,866,560; Hindus, 1,087,063; Mohammedans, 328,613; Christians, 474,060. The urban population makes up about 14 per cent of the total. The chief towns with their 1911 populations are: Colombo, 211,274; Galle, 39,960; Jaffna, 40,441; Kandy, 29,451. The government schools in 1919 numbered 884 with an attendance of 97,819 boys and 32,570 girls; aided schools 1855 with 129,027 boys and 78,649 girls; unaided schools, 1363 with 28,649 pupils. The English and English vernacular schools numbered 265 with 36,376 boys and 10,512 girls. The acreage under the principal products in 1919 was approximately as follows: Cocoanuts, 1,012,000; rice, 710,000; other grain 160,000; tea, 450,000; rubber, 309,000; cacao, 31,000; cinnamon, 35,000. The exports in 1919 were £31,918,041; and the imports £21,106,060. The chief exports were cocoa, cinnamon, and coir, copra, cocoanut oil, tea, plumbago, dry cocoanuts, rubber, and areca nuts. The greater share in respect to value was that of rubber and tea. The chief imports in 1919 were cotton manufactures, rice, coal and coke, sugar and manures. The chief mineral interest is the mining of plumbago





which is the chief mineral export. Among other minerals which have been found but not in commercial quantities are coal, gold, and thorium. There are mines of monazite and many quarries of small gems. The native manufactures are of slight importance. The shipping entered and cleared in 1919 had a tonnage of 17,706,617 of which 13,131,162 was British, which amounted to nearly three times the tonnage of the preceding year. Railways open to traffic Sept. 30, 1919, had a mileage of 727. The Maldivé islands which lie 400 miles to the west are under a sultan who pays a yearly tribute to the Ceylon government. They are inhabited by about 70,000 Mohammedans. Ceylon is under a high commissioner appointed by the crown and an executive council. The legislative functions are administered by a body of 18 members. High commissioner at the beginning of 1921, M. Stevenson.

CHAD. See FRENCH EQUATORIAL AFRICA.

CHALIAPINE (SHALIAPIN), FEODOR. See MUSIC, Artists, Vocalists, Opera.

CHAMBER OF COMMERCE. See CITY PLANNING.

CHAMBERS, CHARLES HADDON. British playwright, died in England, March 28. He was born at Sydney, New South Wales, April 22, 1860, of Irish descent and educated in the public schools of Sydney. After a brief service as government employee, he became a stock-rider in the bush, but at the age of twenty-two went to England where he entered journalism and became a story-writer. This finally led him to the drama and he wrote two plays which met with little success, but while he was still under thirty, he wrote the highly successful drama, *Captain Swift*, produced in the autumn of 1888. Other plays of his were *The Idler*, produced in New York; *John-a-Dreams*, produced in 1891; *The Awakening*; *The Golden Silence*; *Passers-by*; *The Impossible Woman*; *The Saving Grace*. He is perhaps best known for the *Tyranny of Tears* which was produced by Wyndham in his last season at the Criterion in 1899.

CHARITIES. Work in the charitable field during 1921, aside from the aspects noted below, is discussed in the present volume under the following heads: RED CROSS; RELIEF FOR WAR VICTIMS; ROCKEFELLER PHILANTHROPIC BOARDS; SOCIAL WORK; YOUNG MEN'S CHRISTIAN ASSOCIATION; YOUNG WOMEN'S CHRISTIAN ASSOCIATION; and other articles on societies with charitable activities. See also CHILD LABOR.

STATE LEGISLATION. In Missouri an act was passed creating social welfare boards in cities of the second and third class at the option of the local government and providing for their administration. In Arizona child welfare boards were provided for and also allowances to widows, deserted mothers, and minor children in certain cases. Connecticut in a measure concerning county houses provided for better protection of uncared-for and neglected children between the ages of four and eighteen. Delaware created a child welfare commission. In South Dakota provision was made for child welfare boards in the counties to aid in the performance of the duties of the State child welfare commission. Wisconsin provided for a juvenile department under the State board of control for the care of dependent, neglected, mentally defective or delinquent children. Michigan authorized the counties to contract with institutions licensed

by the State board of charities and corrections for the care and relief of children.

HOME CARE FOR DEPENDENT CHILDREN. Conditions occasioning the removal of children from their homes and measures by which family care may be preserved are discussed in a report entitled "Children Deprived of Parental Care," issued by the U. S. Department of Labor through the Children's Bureau based on the experience of 513 children cared for by agencies in Delaware. It was found that in one case out of every five, delinquency on the part of parents or guardians was the cause of the child's removal. Inability of parents or guardians longer to care for the child occasioned the removal of almost one-fourth. Delinquency on the part of the child was given as the immediate cause for somewhat more than two-fifths of the removals. For 10 per cent of the children studied it appeared that the developmental advantages of normal home life might have been preserved had financial assistance in the home been available. Nowhere in the State, at the time of the survey, was suitable care to be had for subnormal children, who constituted 11 per cent of the group. A beginning toward such provision was subsequently made. Only 17 per cent of the children were placed in private families, the other 83 per cent being placed in institutions. This circumstance was especially surprising inasmuch as home-finding agencies of other States had placed large numbers of dependent children in Delaware. Such measures as a State probation system, mothers' pensions, and placing-out and boarding-out under proper supervision, were recommended in the report as means for correcting in part the social wastage originating in child neglect. Delaware began a carefully considered forward movement after the inquiry was made.

NATIONAL INFORMATION BUREAU. As a coöperative effort to protect the contributing public and to standardize the methods of national, social, civic, and philanthropic organizations, the National Information Bureau, 1 Madison Avenue, New York, Geddes Smith, Acting Director, carried on during the year the work begun by the National Investigation Bureau in 1918. Its Board of Directors, composed equally of representatives of both the contributing public and organized social work, had adopted standards which all social, civic, and philanthropic agencies seeking funds from the public on a national or interstate basis were invited to accept. These standards included an active and responsible board of directors, a legitimate purpose with no avoidable duplication, reasonable efficiency, no solicitations on commission or by the use of the remit or return method, no entertainments where expenses exceeded 30 per cent of the gross proceeds, ethical methods of publicity and promotion, agreement to consult and coöperate with the proper social agencies in local communities with reference to local programmes and budgets, complete annual accounts audited by a certified public accountant and the use of an annual budget. In the light of these standards, over 1700 agencies had been investigated by the Bureau up to the end of 1921. Eight bulletins, listing social agencies approved after investigation, had been issued and 8903 special confidential reports relating to particular organizations had been sent to inquirers. A number of unworthy agencies had been led to

terminate their work. The Bureau is financed by membership fees and contributions from individuals, corporations, philanthropic foundations, community chests, charity federations, and chambers of commerce. No fees are accepted from organizations whose work brings them within the Bureau's field of investigation. At the request of a conference of national social agencies desiring to improve their coöperative relations, the Bureau began in September a special study of the work of such agencies in a number of typical communities. This study, under the direction of Porter R. Lee, Director of the New York School of Social Work, was intended to secure the facts as to the relations of national social agencies operating in these selected communities with each other and with local organizations.

CHARLIER, MARCEL. Belgian orchestral conductor, died in Belgium, in June. He was born in Liège, in 1881. Having distinguished himself at La Monnaie, Brussels, and Covent Garden, he came to the United States in 1906 as conductor at Hammerstein's Manhattan Opera House. From 1910-20 he was one of the conductors of the Chicago Opera.

CHASE, EMORY ALBERT. Judge, died, June 25. At the time of his death he was judge of the court of appeals of New York. He was born at Hensonville, N. Y., August 31, 1854; and began the practice of law at Catskill. He was president of the board of education, 1891-96; and became justice of the supreme court in 1896. On Jan. 9, 1906, he was appointed to the court of appeals.

CHAUTAUQUA INSTITUTION. Founded in 1874 at Chautauqua, N. Y., by Methodists, this Institution soon became non-sectarian and furnished the meeting ground for members of all creeds and denominations. The movement began as a Sunday School with two purposes in view: (1) to conduct a summer school for Sunday School teachers, and (2) to arrange the presentation of a series of correlated lectures and entertainments during June, July, and August. The movement has grown extensively and its activities now consist of (1) A General Assembly with an educational though necessarily popular series of lectures and addresses, dramatic and other entertainments, concerts, etc., during eight weeks in the summer; (2) Summer Schools offering systematic classroom instruction in a great variety of subjects under 13 departments, for six weeks annually; and (3) the Home Reading work, provided in a set of four books and the news narrative appearing regularly in some weekly review. *The Independent* is at present the medium of this branch of the movement. A monthly bulletin is furnished the teaching element. This department operates throughout the year and has an enrollment of about 10,000, with a still greater number of readers. There is an annual attendance of 50,000 persons at the public Assemblies, and the enrollment at the Summer Schools reaches 3000 students.

The forty-eighth Assembly was held during the months of July and August in 1921 at Chautauqua, N. Y. It was regarded as highly successful. A great many lectures on various subjects were given by prominent men. A gratifying increase in the enrollment of the Summer Schools was noted. The year saw the opening of the Institution's new Club House, at Chautauqua the gift of

Mr. and Mrs. S. I. Munger. Efforts were made throughout the year to raise through private subscription the \$150,000 needed to complete the total of \$600,000, which was the goal of the Comprehensive Plan inaugurated in 1919. John D. Rockefeller has been a generous contributor to the Institution and its work. The Institution maintains the Chautauqua Press at Chautauqua, N. Y. Mr. Arthur E. Vestor is President of the movement.

CHEESE. See DAIRYING.

CHEMICAL INDUSTRIES. See CHEMISTRY, INDUSTRIAL.

CHEMICAL SOCIETY. See CHEMISTRY, INDUSTRIAL.

CHEMISTRY. The steady progress in the development of chemistry is the only feature of the year, for no announcement of any startling discovery appears in the literature as it has been received. Slowly the great universities of Central Europe are resuming their work and an interesting feature of the progress of the science is shown by reports published in the journals of investigations carried on in industrial establishments.

Two important lectures were delivered before the London Chemical Society during the year. The first was on Some Properties of Explosives (*Transactions*, pp. 1-28) and the second on Mass Spectra and Atomic Weights by F. W. Aston (*Ibid*, pp. 677-687). To these must be added the presidential address by Sir James J. Dobbie on The Study of the History of Chemistry; its Importance and Uses. The Emil Fischer Memorial lecture by M. O. Forster also deserves mention (*Ibid*, pp. 1157-1201).

The Longstaff Medal of the London Chemical Society, awarded every three years, was this year given to Prof. Jocelyn F. Thorpe for his "important and numerous contributions to organic chemistry."

NEW ELEMENTS AND ATOMIC WEIGHTS. Dr. Bourgerel in an article on The Mendeléev Series arranged and brought up to date in 1917, according to the latest published Atomic Weights, calls attention to the fact that there were still two unknown elements to appear in Mendeléev's series having atomic weights about 152 and 216 respectively, and then claims to have discovered two such metals in certain minerals, naming them Ekarhodium and Ekaerbium, respectively. Ekarhodium gives a non-volatile chloride, which is decomposed by heat, losing chlorine. Its oxide gives salts with the alkali hydroxides. Ekaerbium was obtained as its hydroxide, which, when calcined, gives an oxide insoluble in acids. Its hydroxide dissolves in hydrochloric acid and on diluting the solution with water a flocculent precipitate is obtained. From the hydrochloric acid solution a black precipitate is obtained on the addition of ammonium sulphide, and the precipitated sulphide, on ignition is converted into the oxide, which apparently has the formula Er_2O_3 .

Studies on the atomic weights of the elements still form a prominent part of the output of the chemical laboratories of Harvard University. T. W. Richards and H. Krepelka find 26.96 as the correct weight for aluminum. A. Classen and O. Ney report a new value of 208.99 for bismuth. After eleven determinations H. H. Willard and R. K. McAlpine conclude that 121.77 best represents the atomic weight of antimony. According to Mlle. Irene Curie the results of determinations

of the atomic weight of chlorine derived from three different minerals yielded a value of 35.60. P. Bruylant and G. Desmet report 127.8 as the means of twelve estimations in alkaline solutions for the atomic weight of Tellurium, while the mean of nine estimations in acid solutions was 127.65. The determination of the atomic weight of Lanthanum was undertaken by G. P. Baxter, M. Tani, and H. C. Chapin, who, using the chloride, found as the result of six determinations 138.914, and of seven determinations 138.912 as their value. Seven determinations for the atomic weight of germanium gave J. H. Muller a value of 72.418.

ANALYTICAL CHEMISTRY. According to E. Babe and T. Cabrera a new indicator for acids and alkalis is the dried, blue blossoms of the butterfly pea. It is used for the detection of the adulteration of milk by the addition of lye from wood ashes. In acid solution the color is a bluish-red, in neutral solution marine blue, and in alkaline solution sky blue. L. W. Winkler continues his classic studies on Gravimetric Analysis and in his fourteenth paper discusses the Estimation of Sulphuric Acid in the Presence of Calcium, Phosphoric Acid, and Chromium. He finds the estimation of sulphuric acid as barium sulphate too low in the presence of calcium owing to the precipitation of calcium sulphate. His fifteenth paper is devoted to the study of the Estimation of Barium as Barium Sulphate. R. W. Kinkaid finds that by the action of ethyl nitrate in magnesium phenyl bromide a deep blue solution is obtained which has the properties of an indicator, turning pink with acids and blue with alkalis. W. Dautwitz describes a New Micro-combustion Furnace for Carbon, Hydrogen, and Nitrogen Estimations which will find use in organic laboratories. F. Rabe under the title of Detection of Methyl Alcohol in Spirits writes that when the morphine-sulphuric acid reagent is used for the detection of formaldehyde, resulting from the oxidation of methyl alcohol, care should be taken to expel all hydrochloric acid from the reagent if this is prepared by mixing morphine hydrochloride and sulphuric acid; the reagent itself soon develops a red coloration in the presence of hydrochloric acid. A New Method for the Estimation of Histidine is announced by W. E. Thrum and P. F. Trowbridge. It is to be used in conjunction with the Van Slyke method and it depends on the absorption of bromine by histidine and cystine. A portion of the solution containing the bases of a coagulable protein is heated with bromide-bromate solution and hydrochloric acid, and after fifteen minutes, the excess is titrated. E. Oppenheimer has found a New Method for the Estimation of Bromine in very small quantities. He colors Schiff's reagent deep blue violet by bromine and finds that when chlorine water is added to such a solution that has been acidified with sulphuric acid it becomes intensively violet, grayish violet, and eventually when there is an excess of chlorine, golden yellow. G. Rodillon reports as a Characteristic Reaction of Phenol that when 10 cc. of a solution containing phenol are treated with a drop of 10 per cent sodium nitrate solution and this poured on the surface of concentrated sulphuric acid, a colored zone (red above, green below) appears at the junction of the two liquids. By dissolving vanadium pentoxide in a dilute phosphoric acid solution, J. Gruss finds a new Reagent for Wood and Vanillin that produces a reddish brown precipitate when vanillin is

added to the solution. When wood shaving is treated with vanadium pentoxide dissolved in dilute phosphoric acid solution, the cell walls are gradually colored yellowish brown. J. J. Morgan publishes a New Method for the Estimation of Potassium in Silicates. Essentially a potassium perchlorate is formed, washed, dried, and weighed in the usual manner. A New Method for the Detection and Estimation of Cobalt is announced by S. A. Braley and F. B. Hobart. It was found when testing for nickel with dimethyl-glyoxime that when cobalt was present a brown coloration resulted. This can also be used as a colorimetric estimation of cobalt and is a specially sensitive test for cobalt in the absence of copper and iron. G. G. Longniescu and G. Chaborski find that the characteristic odor of nitricbenzene is found when a nitrate is heated with a few drops of benzene and concentrated. This test is proposed for the Detection of Nitric Acid. W. Hieber describes A New Method for the Titration of Enols in Ketoenolic Mixtures which depends on the formation of complex copper salts which are freely soluble in chloroform and quantitatively retained by this solvent in the presence of water and in the quantitative retention of copper acetate by water in the presence of chloroform which may also contain alcohol. Later in the year L. W. Winkler added to his valuable studies on Gravimetric Analysis a paper on the Estimation of Zinc and two on the Determination of Chromium, all of which contain valuable information for those who make a specialty of analytical methods.

INORGANIC CHEMISTRY. Megh Nad Saha has been studying the Elements in the Sun. He reports that no evidence of the existence of the following elements in the sun has been obtained: Rubidium, cesium, nitrogen, phosphorus, boron, antimony, bismuth, arsenic, sulphur, selenium, thallium, praseodymium. Doubtful indications of the following have been obtained: radium, elements of the inert group, except helium, osmium, iridium, platinum, ruthenium, tantalum, thorium, tungsten, uranium. The following are represented by faint lines in the Fraunhofer spectrum: Potassium, copper, silver, cadmium, zinc, tin, lead, and germanium. Chlorine, bromine, iodine, fluorine, and tellurium have not been investigated. Another student from the Orient, Nil Ratan Dhar, has undertaken an elaborate series of investigations on Catalysis. His eighth paper deals with the effect of catalysts on the reaction between ferrous ammonium sulphate and silver nitrate and on the atmospheric oxidation of sodium sulphite solution, and with the hydrolysis of methyl acetate by oxalic and picric acids in the presence of potassium oxalate and sodium picrate respectively. In a ninth paper with the subtitle of Thermal and Photo-chemical Reactions he shows that many reactions having large temperature coefficients are sensitive to light, and hence it is considered that sensitiveness to temperature and to light influences, have a common cause. A tenth paper is devoted to the Explanation of some abnormally large and small Coefficients. Two American chemists, W. A. Hoyes and A. B. Haw, have given much attention to The Reaction between Chlorine and Ammonia. When anhydrous ammonia and anhydrous chlorine react, they form nitrogen trichloride and ammonium chloride. A considerable proportion of the trichloride always decomposes

into chlorine and nitrogen either directly or by interaction between the trichloride and ammonia. In a later paper the senior author discusses the Probable Formation of Trichloro-ammonium Chloride. In a paper on the Series Spectra of the Elements, N. Bohr contends that the application of the quantum hypothesis to the nuclear conception of the atom, combined with the assumption of a series of stationary conditions of the electronic orbits, has afforded a completely satisfactory explanation of the origin of the hydrogen spectrum. J. Franck and P. Knipping in a paper on The Potential of Excitation of Helium announce that the resonance and ionization potentials of pure helium have been determined and show that two resonance potentials exist at the values 0.8 volts removed from one another, a result which is demanded by the two series of spectra of helium. The Life Period and Content in Uranium Minerals, by O. Hahn and L. Meitner is of unusual interest. These authors find that one ton of uranium in any uranium mineral contains 72 mg. of protoactinium; the corresponding figure for radium being 330 mgm. The half life period of protoactinium being about 12,000 years. G. von Hevesy has devoted much attention to the Velocity of Migration of the Ions in Crystals. He finds in rock salt the migration constant at 20° is about 3×10^{-18} cm² a day, about $1-10^{20}$ of that of the ions in the fused salt. The migration velocity according to his experience increases rapidly with temperature. A. Landé has taken up the Size of Atoms and reports that values for the radii of the alkali and halogen ions deduced from the cubical structure of alkali-halogen salts are not in agreement with the more certain values deduced from the consideration of the x-ray and ordinary spectra series of lines of these elements. Under the title of The Electrical Resistance of Steels, A. Portevin presented to the French Academy a series of curves showing that the variation in resistance of nickel steels was in accordance with their carbon and nickel content. A curious innovation by W. F. Darke, J. W. McBain, and C. S. Salmon, is the study of the Ultramicroscopic Structure of Soaps and the rapid changes which occur. These are recorded and examined by the use of a cinematograph camera. After an examination of the preliminary stages they find that the stable condition of soaps at ordinary temperatures is, however, due to the formation of innumerable tiny lamellar crystals of hydrated soap. J. B. Firth has studied the Sorption of Iodine by Carbon over periods of time extending to five years and finds that the initial absorption velocity is greater the smaller the size of the carbon particles, while the presence of water in the carbon diminishes its activity. J. C. Thresh finds that water itself has no action on lead and merely acts as an inert medium by means of which foreign substances dissolved in it may act on the metal. F. Foester finds on restudying the properties of Sodium perborate that its composition is best represented by the formula $\text{NaBO}_2 \cdot \text{H}_2\text{O}_2 \cdot 3\text{H}_2\text{O}$.

MINERALOGICAL CHEMISTRY. In this branch of chemistry there was an interesting contribution on The Formation and Chemical Structure of Coal by F. Fisher and H. Schrader in which the authors contended that in the peatification of plant residues the cellulose is acted on by bacteria, disappearing in time, being converted into carbon

dioxide and water. This results in an increase in the relative amount of lignin. This course of events can be followed in peat. Later K. G. Jones attacked this theory as not being in accordance with all the known facts and preferred to claim that the origin of coal was not from lignin but rather from the cellulose portion of plants. In an important paper Henry S. Washington discusses The Chemistry of the Earth's Crust and divides the elements into groups: 1. petrogenic elements, characteristic of igneous rocks and of low atomic weight; 2. metallogenic elements, rare or absent in igneous but occurring in ores of high atomic weight. Beneath the silicate structure it is suggested that there is a zone essentially of nickel-iron, and below this a central core of metallogenic elements. The crystallography of minerals and their optical properties continues to be a favorite subject of study. Among the new minerals of the year are Flagstaffite which F. N. Guild found near Flagstaff, Ariz. It has the composition: $\text{C}_2\text{H}_2\text{O}$. F. Millosevich finds at Monte-Sambuco in Sicily a hydrated magnesium tetraborate (MgO , $4\text{B}_2\text{O}_3$, $4\text{H}_2\text{O}$), which he names Paternoite. From Langban, Sweden, came two new manganese minerals which are named by G. Flink, Trigonite (Pb , MnH [As_2O_5]₂) and Dixonite ($\text{MnSiO}_3 + 2[\text{MnOH}] \text{MnAsO}_3$). Armangite is the name given to a new arsenite also from Langban which according to G. Arminoff and R. Mauzelius is a manganese ortho-arsenite with the composition of $\text{Mn}_2(\text{As}_2\text{O}_5)_2$. W. F. Foshag announces from Crestmore, Calif., Plazolite with the composition 3CaO , Al_2O_3 , $2(\text{SiO}_2\text{CO}_2)$, $2\text{H}_2\text{O}$. Also from Crestmore there comes from Foshag and E. S. Larsen a new calcium, magnesium silicate which is named Merwinite and has the composition $\text{Ca}_2\text{Mg}(\text{SiO}_4)_2$. H. Buttgenbach and C. Gillet have obtained from Tunis a new mineral which they name Cesarolite and which has the following composition: PbO , 3MnO , H_2O . Further study of the silver Jamesonite by Earl V. Shannon leads him to now describe it as a new silver lead sulphantimonite with the formula $\text{Ag}_2\text{Pb}_2(\text{Sb}_2\text{S}_7)_2$, which he names Owyheeite from the locality in Idaho where it was originally found. This same author with C. Palache finds a new hydrated copper calcium arsenate with the composition $\text{CuCa}(\text{OH})\text{AsO}_4$ which they name Higgensite. Shannon with D. F. Hewett has described a new mineral from Orienta, Cuba, which they call Orientite. It has the composition $\text{H}_2\text{Ca}_4(\text{MnOH})_4(\text{SiO}_4)_4$. A. S. Eakle has recently reported on a new hydrated calcium, magnesium silicate from Crestmore, Calif., which he calls Gurupaite. The composition is $\text{H}_2(\text{CaMg})\text{SiO}_7$.

ORGANIC CHEMISTRY. As in 1920 (see preceding YEAR BOOK, page 129), there were a large number of partial reports of extensive studies on some important group or phase of an investigation. Some of the more extensive of these are again mentioned as showing progress and their general character is indicated by their titles.

M. Giua, an Italian chemist, has reached the fourteenth paper on the Aromatic Nitro-derivatives. It bears the sub-title A New Bromotrinitro benzene. The fourteenth study on the important subject of Keto-enolic Desmotropy by K. H. Mayer and his associates was read before the German Chemical Society, and was descriptive of the Preparation of the Enolic

Forms of Ethyl Acetoacetate and Acetylacetone. A. Smorodincev published in the Russian *Journal of Physiology* a paper on Carnosine and its Compounds, the twentieth in the series on Extractive Substances of Muscular Tissue. In the *Journal of the American Chemical Society* there appeared the 20th paper on Halogenation by R. L. Datta and J. S. Bhonmik with the sub-title "The Replacement of Sulphonic Acid Groups by Halogens." Before the London Chemical Society George G. Henderson and J. K. Marsh presented their 20th paper on the Chemistry of the Terpenes, with the sub-title of the Action of Hypochlorous Acid on Pinene. H. Staudinger and his associates completed the twentieth and twenty-first papers on the Aliphatic Diazo Compounds. The former was on the Reduction by Means of Hydrogen in Presence of Palladium and the latter on the Constitution of the Hydrazones, especially of Ethyl Mesoxalatehydrazone. Later, the 22nd and 23rd, on the Reduction of Ethyl Diazoacetate and Formulation of Ethyl Diazoacetate and of Diazo-anhydrides were published. In the *Berichte* of the German Chemical Society Paul Rabe and E. Jantzen published the 22nd paper on The Cinchona Alkaloids in which they described the Synthesis of 3-Acetyl-4-Methylpyridin and of B-Collidine. The synthesis of these substances from homo nicotinic acid is described. The Organic Derivatives of Silicon by F. S. Kipping has reached its 24th presentation in the *Transactions* of the London Chemical Society with the sub-title dl Derivatives of Silico Ethane. The 25th number in the series, with the title Saturated and Unsaturated Silicohydrocarbons, and the 26th, describing Piperidine as an Analytical Reagent, appeared in June. In the series on The Influence of Substitution in the Components on Equilibria in Binary Solutions, R. Kreemann and H. Hohl have reached their 29th paper on the Binary Systems of *m*-Aminophenol with Amines. The 30th paper is on The Binary Systems of Diphenylmethane with Phenols and Amines. In the *Berichte* was published the 31st of the series on Cholesterol with the sub-title The Differing Behaviour of certain Stereoisometric Derivatives of Cholesterol by A. Windaus and A. von Staden. The 39th of the studies on the Camphane Series by M. O. Forster and W. B. Saville on *p*-Amino-phenylaminocamphor appeared in the June issue of the *Journal* of the London Chemical Society. The 89th number of Studies on Pyrimidines by T. B. Johnson and L. A. Mikeska appeared in the *Journal* of the American Chemical Society under the heading of The Condensation of Benzamidine with Ethyl γ Diethoxyacetoacetate. An important series of papers on the Polysaccharides was begun in 1920 by P. Karrer and was continued during the present year by the publication of 2, Constitution of Diamylose, with C. Nageli; 3, Cellulose with F. Widmer; 4, Degradation of Potato Starch, with C. Nageli; 5, Methylation of Inulin, with L. Lang; 6, Constitution of Starch and Glycogen, with C. Nageli; 7, Constitution of Cellobiose, with F. Widmer; 8, Starch and the Amyloses, with C. Nageli, O. Hurwitz, and A. Walti, and 11, Compounds of Anhydro-sugars with alkali hydroxides.

Other important papers include the Synthesis of a Tetrasaccharide containing sulphur, by Fritz Wrede, who prepares tetradeca-acetate of dicelloyl sulphide by heating acetobromocellose

with alcoholic potassium sulphide. The tetrasaccharide, dicelloyl sulphide $C_{24}H_{40}O_{10}SK_4 \cdot 4H_2O$ was obtained from the acetyl derivative by saturating a methyl-alcoholic solution of it with ammonia and extracting with hot 90 per cent alcohol. The potassium compound of the tetrasaccharide was obtained by treating the acetyl derivative with aqueous-alcoholic potassium hydroxide in hot alcohol. C. E. Munroe and S. P. Howell have investigated the Products of Detonation of Trinitrotoluene. From ten experiments with charges increasing by 50 grams from 25 grams to 450 grams with loading densities of from 0.0016 to 0.003, the maximum and minimum percentages of the gases found were as follows: CO_2 , 6.4, 1.1; CO , 60.7, 53.2; H_2 , 27.6, 19.9; CH_4 , 2.3, 0.1; N_2 , 15.6, 13.3. The amount of the gases absorbed by the solid combustion products was found to be 6.11 cc. to the gram, the composition being CO_2 , 71.3; CH_4 , 1.0; N_2 , 27.7 per cent. A Synthetic Camphor is reported by A. Luttringer, who finds that certain pine needle oils, and also Siberian oil of turpentine contain 30 to 45 per cent of bornyl, the remainder being terpenes. About 75 per cent of the terpenes can be converted into bornyl formate by means of formic acid and a dehydrating agent. The mixture of bornyl esters can then be converted into a camphor which is free from compounds of chlorine. George Schiet has patented a process in Germany for the Preparation of Alcohols of High Molecular Weight. He finds that solid or liquid alcohols of high molecular weight may be prepared by the reduction of more complex alkyl derivatives by heating with aqueous alkali hydroxide solutions and alcohols. He notes that the alcohols prepared from the ketones of the resin acids are viscous liquids. Two Japanese chemists, M. Matsui and S. Shimizu, describe under the title of Electrolytic Reduction of Menthone, the experiments that tend to prove that menthone can only be reduced electrolytically in either sulphuric or hydrochloric acid solutions. P. A. Levene and J. Lopez-Suarez sustain by experimental work on the Chemical Structure of Chondridin the previous contention of Hebling that chondridin is a lactone of chondrosin and that it has probably the formula $C_{15}H_{15}O_{10}N \cdot 2\frac{1}{2} H_2O$, but with the position of the NH_2 group uncertain. It is a white crystalline powder. K. Kobayashi studied the Formation of Petroleum from Fish Oils, and finds that by the distillation of a mixture of herring oil and a finely powdered Japanese acid clay covered with a layer of the same clay gases, mainly carbon dioxide, crude oil and an aqueous liquid were obtained. The crude oil had a green fluorescence and a petroleum-like odor, and seemed identical with natural crude petroleum; hence he deduces the origin of Japanese petroleum to be from fish oil. The melting point of Diphenylamine has been redetermined by H. Rogers, W. C. Homes, and W. L. Lindsay, and found to be 53°, instead of 54°. J. von Braun and K. Moldanke have obtained Styrene from Ethylbenzene in good yield by direct bromination of the ethylbenzene to alpha beta-dibromoethylbenzene with a boiling point of 133° and treatment of the bromo-derivative with metallic magnesium. An interesting attempt to effect a Synthesis of Anthracene from Naphthalene by C. W. Colver and W. A. Noyes of the University of

Illinois after several failures finally culminated in success. The details are highly technical. H. Pohle has published a valuable contribution to the study of artificial rubber. Caoutchouc and Two Dimethylcauthorucs have been investigated in respect of their dispersion and swelling properties in various solvents. A similar investigation is one by W. Ostwald on the Swelling of Caoutchouc in Various Liquids. Mention may also be made of the later paper published in Rome, Italy, by G. Bruni and E. Romain on the Mechanism of the Action of certain Accelerants of the Vulcanization of Caoutchouc, as well as of one by H. P. Stevens on the Sols and Gels of Vulcanized Caoutchouc. Step by step is progress made towards an inexpensive synthetic rubber. E. Fournau in an interesting paper on Local Anæsthetics discusses the composition and properties of a number of these valuable aids to surgery, also their methods of preparation is outlined. From Japan comes the description of the Essential Oil of Dokudame and the Essential Oil of Kokusagi, forming two papers on the methods of preparation and properties of these oils by Y. Shinosaki. Organic compounds of inorganic elements have formed the subject of studies in Germany and conspicuous among such may be mentioned a series on the Organic compounds of Arsenic, by W. Steinhopf and G. Schwen. The long discussed Composition of Iodide of Starch has been taken up by A. Lottermoser, who agrees with Biltz and others that the so-called "iodide of starch" is an adsorption compound of starch and molecular iodine. Under the title of Mytilitol, a Naturally Occurring Cyclose, D. Ackermann describes his isolation of this substance from *Mytilus edulis* in detail and reports it as forming colorless, lustrous crystals with a melting point of 259° that are optically inactive and do not contain a methoxyl group. K. H. Meyer and L. Orthmer report the Synthesis of Formamide from Carbon Monoxide and Ammonia. This compound is obtained in small amount by heating carbon monoxide and ammonia in a steel tube in the presence of porous clay at 200° under a final pressure of 170 atmospheres. The Benzene Formula Problem is again discussed by A. von Weinburg, who finds that the introduction of a substituent into the benzene ring causes an alteration in the aromatic character, the extent of which depends on the nature, number, and position of the substituents. It is shown by a series of examples that the abnormal deviations can be considered mathematically in the cases of molecular refraction, absorption spectra, and energy content.

PHYSIOLOGICAL CHEMISTRY. The Physiological Action of Calcium, according to R. Hober shows that a deficiency of calcium as well as an excess of potassium produces relaxation in the condition of the cell colloids. Calcium deficiency is also responsible for the loosening of tissues of a different character at the place of contact, that is, nerves and muscles, etc. R. Feuglen, as the result of a quantitative investigation describes A Complex Nucleic Acid which he concludes that when guanylic acid and pancreas-nucleic acid previously established in the pancreas that they may be considered as artificial products of hydrolysis of this new complex acid. Estimations of formic acid in urine and blood indicate that this substance represents a definite stage in

the katabolism of many substances is the claim made by A. Slosser in a paper on the physiological Significance of Formic Acid. E. Oppenheimer in answer to the question: Is there a Specific Action of Bromine Salts? on the animal organism concludes that the combination of bromine is of a physico-chemical character. From the Pasteur Institute in Paris comes the announcement that P. Thomas finds two new proteins that may be separated from the aqueous extract of yeast, of which one is a true albumin and the other a phosphoprotein. The blood of the silk-worm has been studied in Japan by S. Kawase, K. Suda, and K. Saito, who find that the blood of the silk-worm larva is amphoteric to litmus paper, while that of the pupa is alkaline. Both fluids are elaborately analyzed. These same authorities also discuss in a later paper The Digestive Enzymes of the Silk-worm and find that the proteolytic enzyme present is trypsin. Lobinol is a poisonous substance that has been isolated by J. B. McNair in the form of an amber-red, oily liquid from the bark of *Rhus diversiloba*. Under the title of Calcium Metabolism W. P. Wheeler makes the interesting announcement that experiments with common fowls and ducks showed that magnesium does not replace calcium in the bones from which it is withdrawn for shell material, but when strontium salts are fed with rations of low calcium content strontium replaces calcium in the bones of the mature birds. A curious suggestion of the Production of Ammonia in Nerve is made by S. Tashiro, who finds that a basic, volatile substance giving the tests for ammonia is formed in addition to carbon dioxide during activity.

It is not formed in amount sufficient to neutralize the carbon dioxide, yet it may be a factor in the infatigability of nerve. C. L. Carter has undertaken the Chemical Investigation of Mutton-Bird Oil and in his first paper discusses the oil extracted from the stomach of an Australian petrel, *Estrelata lessoni*, which he finds resembles sperm oil very closely in its physical and chemical properties. The alcohols obtained by saponification of the oil consist chiefly of cetyl alcohol, and the greater portion of the mixed fatty acids consist of oleic acid. There is evidence of the presence of acids of the linolic or linolenic series. Among the more elaborate studies that have appeared during the year are a series on Alcoholic Fermentation by S. Kostyche and his associates, who contend in a tenth paper that Fermentation is Life without Oxygen. Mention may also be made of the many contributions by J. Zellner which have been published under the general title of Chemistry of the Higher Fungi, which has reached its fourteenth number. Similarly H. Molisch has contributed to vegetable physiology no less than fifteen papers on the Microchemistry of Plants.

CHEMISTRY, INDUSTRIAL. The meeting of the Society of Chemical Industry and the American Chemical Society—organizations with a joint membership of over 20,000 persons—in New York City on September 7, attended with a large public interest as shown by the attention given to it by the public press, was unquestionably the outstanding event of the year. Sir William J. Pope, retiring president of the Society of Chemical Industry, on his return to England in referring to the event, spoke of the ability of American chemists "to throw the whole weight of collected chemical opinion in the country

[United States] on to any particular question of general importance" and of exercising "an influence in the legislature which counts quite seriously in political affairs."

ORGANIZATIONS. The American Chemical Society held its spring meeting in Rochester, N. Y., during April 25-29. The annual meeting was held at Columbia University in New York City during September 6-10. The visiting members of the Society of Chemical Industry were guests at this meeting and unusual features of entertainment were provided including an International Meeting on September 7, at which the following addresses were delivered: Chemistry and Civilization: Dr. Edgar F. Smith, provost emeritus, University of Pennsylvania, in the chair. Science and Civilization; The Role of Chemistry: Dr. Charles Baskerville, director of the laboratories, College of the City of New York; chairman, International Committee. Energy; Its Sources and Future Possibilities: Dr. Arthur D. Little, chemical engineer and technologist, Boston. The Engineer; Human and Superior Direction of Power: Dr. Leo H. Baekeland, honorary professor of chemical engineering, Columbia University. Chemistry and Life: Sir William J. Pope, professor of chemistry, Cambridge University. Theories: Dr. Willis R. Whitney, head of research department, General Electric Company. Research Applied to the World's Work: Dr. C. E. K. Mees, head of research department, Eastman Kodak Company. Problem of Diffusion and Its Bearing on Civilization: Prof. Ernst Cohen, professor of chemistry, University of Utrecht. Catalysis: The New Economic Factor: Prof. Wilder D. Bancroft, professor of physical chemistry, Cornell University. These addresses were described as "more than remarkable—they were epoch-making. Nothing of late has served to open our eyes more to the possibilities of the immediate future in the field of chemistry than many of the remarks and predictions and hypotheses of the leading chemists gathered at the various sessions" of this meeting.* Sir William J. Pope and M. Paul Kestner were elected honorary members. The membership is 15,300. Dr. Edgar F. Smith of the University of Pennsylvania was president during the year.

The American Electro-chemical Society held its spring meeting in Atlantic City, N. J., during April 21-23, and its general meeting at Lake Placid, N. Y., during September 29-October 1. Its president during the year was Acheson Smith. The American Institute of Chemical Engineers held its summer meeting in Detroit, Mich., during June 20-21, and its winter meeting in Baltimore, Md., during December 6-9. The president during the year was David Wesson. The American Section of the Société de Chimie Industrielle held its regular sessions during the year with Dr. Marston T. Bogert as its president.

The Society of Chemical Industry held its fortieth annual meeting in the McDonald Chemistry Hall of McGill University in Montreal, Canada, during August 29-31 with Sir William J. Pope in the chair. The membership was increased during the year from 5612 to 5654. The treasurer reported that the strict economy practiced in recent years had brought about practical results and for the first time since 1917 he was

able to report a slight excess of income over expenditures. Dr. Robert F. Ruttan, "the most distinguished figure in chemical science in Canada" was elected president, and Glasgow, Scotland, was chosen as the meeting place for 1922. At the close of the meeting excursions to Ottawa, Toronto, and Niagara Falls were enjoyed by the visiting chemists through the courtesy of the Canadian Sections. On September 5, as the party crossed the border into the United States, the members were received by a delegation of the American Chemical Society led by its president, Dr. Edgar F. Smith, who read a message of welcome from President Harding in which he said of the materialistic sciences "none holds promise of so great contributions to human welfare in the coming generations" as chemistry. The visiting chemists then proceeded by way of Syracuse and Albany to New York City, where they became the guests of the American Chemical Society at its meeting there.

NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES. The seventh National Exposition of Chemical Industries was held in the armory of the Eighth Coast Artillery in New York City during the week of September 12-17. The Exposition was formally opened with a brief address by Dr. Charles H. Herty, who was followed by a more formal address on "Chemical Progress and Our National Defense," by Senator Irvine L. Lenroot and one on "Preparedness and Chemical Disarmament," by Gen. Amos A. Fries of the Chemical Warfare Service of the United States Army. Throughout the week there were daily addresses or symposiums on technical subjects. The addresses included one by Congressman Fred S. Purnell of Indiana, who said: "America has taken the lead in the world's chemical industry. That position must be sustained not only as a potential element of preparedness but as a peace measure. The coal tar industry and the science of chemical warfare are so closely allied that it becomes our paramount duty to protect the dye manufacturer. The military strength of a nation will in the future depend almost entirely upon its dye plants." Later, Dr. Thomas W. Page, Chairman of the U. S. Tariff Commission, spoke on "The Chemical Industries and the Tariff." He said: "That one of the most important features of the new bill was the American valuation proposal and stated that studies were now under way to determine how this feature of the proposed law should be worked out." The symposiums included one on "Crushing, Grinding, and Pulverizing," led by Harry J. Wolf; one on "Evaporating and Drying," led by Wallace Savage; one on "Paint and Varnish," led by Ernest T. Trigg; the meeting of the American Ceramic Society under the direction of R. C. Purdy, a symposium on the "Power Plant in the Chemical Industries," led by R. C. Beadle; and one on "American Dyes and Colors." American manufacturers of dyestuffs now supply more than 80 per cent of the needs for this product in the United States. The American chemical and dyestuff industry is still in its infancy, and to have been able in the few years it has been in existence to supply dyes that were made by concerns of more than forty years of experience is a great achievement. The exhibits were fully equal to those of previous Expositions and there were 424 exhibitors. The total attendance was 120,081

* See "The Role of Chemistry: Visions of Future Progress of the Human Race through Chemistry," in the *Scientific American* for Oct. 1, 1921.

visitors which included the members of the various chemical organizations in sessions in New York at the time, especially the American Chemical Society and the Society of Chemical Industry. Owing to the great distance from the centre of the city it was decided to return to the Grand Central Palace for the Exposition to be held in 1922.

VISIT OF MME. CURIE. The visit to the United States of Madame Marie Sklodovska Curie, described as the "high priestess of science," and certainly "the greatest living women in the scientific world," deserves mention. Madame Curie arrived in New York on May 11 and sailed for home on June 25. During this period of time she received at the hands of the President of the United States a gram of radium valued at \$100,000 together with mesothorium valued at \$22,000 placed in a costly mahogany box from the Madam Curie Radium Fund Committee which raised by popular subscription the money required to purchase this rare element, so as to enable her to continue her experiments with the material which she and her husband first gave to the world. She received honorary doctorates from Smith, Woman's Medical College, Pittsburg, Yale, Columbia, Chicago, Northwestern, Wellesley, and Pennsylvania. She also received a gold medal from the American Philosophical Society which carried with it a money award of \$800; the Naples Table award of \$2000, and the Willard Gibbs gold medal as well as that of the National Institute of Social Science.* It was reported that Mme. Curie had received a total of sixty-four honorary degrees, including nine from American colleges and universities. Mme. Curie's visit to the United States did much to increase the interest in the use of radium for the cure of cancer and other diseases of abnormal growth. Articles both in favor and against its use have been published, but the present opinion seems to lean towards its efficacy provided the case is taken in time. Better technique will probably sustain this opinion.

CHEMISTRY IN WAR. By an interesting coincidence the retiring president of the Society of Chemical Industry, Sir William J. Pope, and the retiring president of the British Association for the Advancement of Science, Sir T. Edward Thorpe, were both distinguished chemists, and both in their addresses referred to the use of poisonous gas in warfare. The first-named said that when the armistice was declared the Allies had sufficient supplies of mustard gas to "have enveloped the Germans knee deep, and had discovered a new vapor against which respirators would be of no avail, so strong that it would stop a man if it were present in the atmosphere in the proportion of one part in five millions," and he claimed that from the humanitarian point of view gas was more merciful than high explosives, and expressed the belief that chemical agencies would be the sole deciding factor in future wars. On the other hand Sir Edward Thorpe said that the Germans had met no fewer than eighteen different forms of poisons—gases, liquids, and solids—in their military operations. Reprisals were inevitable and for the greater part of three years the leading nations of the world were flinging the

most deadly products at one another that chemical knowledge could suggest and technical skill contrive. Also he deplored in passionate words the prospect on the part of science and of humanity, and hoped that by some form of international agreement the use of these products might be averted. The London *Times* in commenting on this condition of affairs said: "The world must face and prepare for the future, or it must prohibit chemical warfare by an international agreement supported by effective international sanctions."

MEDALS. On January 24, the Perkin Medal of the Society of Chemical Industry for the highest achievement in applied chemistry was presented to Dr. Willis R. Whitney, director of the Research Laboratory of the General Electric Company in Schenectady, N. Y. The William H. Nichols medal of the American Chemical Society was on May 8 presented to Dr. Gilbert N. Lewis, dean of Chemistry in the University of California in Berkeley, for his "The Third Law of Thermodynamics and the Entropy of Solutions and of Liquids," being in the opinion of the judges the best paper published during the year. To Mme. Marie S. Curie the Willard Gibbs Medal of the Chicago Section of the American Chemical Society was awarded on the occasion of her visit to Chicago. It was the first time an award of this medal was ever made to a woman. The National Institute of Social Science also presented to Madame Curie one of its gold medals at its annual dinner in New York City on May 19. Prof. Charles F. Chandler, one of the founders of the American Chemical Society and distinguished for his services in the field of chemistry, likewise received one of the gold medals of the National Institute. To Dr. Frederick B. Power, Research Chemist of the U. S. Department of Agriculture, there was presented on May 9 a gold medal "in recognition of his distinguished services to science during eighteen and a half years as director of the Wellcome Chemical Research Laboratories, London," by its founder, Henry S. Wellcome. Mention must be made of the award of the Nobel prize in chemistry to Prof. Walter Nernst of the University of Berlin for his work in electrochemistry. Professor Nernst's greatest claim to fame is the discovery of the third law of thermodynamics or the heat theorem. It is interesting to add that Nernst was the inventor of the Nernst lamp which appeared to be about to enter universal use when it was superseded by the tungsten lamp. Also he was the head of the scientific staff that produced poison gas for Germany during the World War.

METALS. The depression in the production of metals due not only to the lack of demand owing to the cessation of war conditions but also because of the bad state of business, has naturally led to the neglect of deposits of various ores formerly worked and the closing of plants.

Harry Pauling of Berlin, Germany, has invented a new simple, rapid, and effective method of separating alloys into their metal components and extracting metals from mineral ores. According to this process, metals treated with the catalytic agent go into solution in a short time, the treatment of big blocks of metal being effected in less than 30 minutes. Out of the solution thus obtained the various metals are separated by the employment of simple methods of chemical reaction, which permit the retaining of the metals

* See for an illustrated account of the presentation of the radium to Mme. Curie the *Bulletin of the Pan American Union* for July, 1921, pp. 25-48.

one by one. The product first obtained is in the form of a muddy sediment which, after being dried, yields a metal powder ready to be used or melted in crucibles, or to be treated by electrolytic process. Metals and concentrated ores can be treated in the same way, although they require one or two more operations than pure metal alloys. It is said that the catalyst employed can be bought in any quantity required, the greater part of it being recuperated in the process and used again. The general expenses involved are declared to be relatively small. The elimination of the melting process does away with the outlay for coal for that purpose. The process is susceptible of being employed on a large scale, quite a number of charges being treated at a time. The apparatus can furthermore be constructed to work continuously, being served in series by the same gang of workmen. It is asserted that the process is effective with any number of metal components, every metal being recuperated separately, and in the case of concentrated mineral ore every component metal part, be it silver, antimony, tin, lead, nickel, or copper, being retained one by one in the purest form. It further appears that Mr. Pauling has developed a new process for the electrolytic treatment of metals, which enables one to procure copper wire directly out of the electrolytic bath, thereby eliminating the melting down of the electro blocks obtained under the old process, the rolling of the blocks into plate, and drawing into wire. It is claimed that this process accomplishes an immense saving in coal, wages, and time.

STEEL. Lucien Basset announces from Paris, France, a new method of manufacturing cast iron and steel, which is already in operation and which materially reduces the cost of steel. He reduces the iron oxide by using exactly the amount of carbon needed. This operation takes place—and this is the original idea of Basset—in a chamber having a high temperature into which is blown powdered carbon and air already raised to a temperature between 700 and 1000 degrees Centigrade. This powdered carbon is admitted in quantity to produce in burning in the heated air only carbon monoxide, but the heat thus emitted, the air being previously at a high temperature, is nevertheless very high and sufficient to assure the rapid and almost complete reduction of the mineral and the production of steel direct. If in place of the atmosphere of carbon monoxide in which thus takes place the reduction there is the atmosphere of carbon dioxide, this carbon dioxide reoxidizes a great part of the iron and scarcely half the mineral is transformed. Prior heating of the air, in which the inblown carbon burns and produces a very high atmosphere, is realized in this way: carbon monoxide is created in the reducing chamber both by the reduction of mineral and by combustion; the powdered carbon burns at its escape from the chamber and the heat thus emitted serves to heat the brick chambers through which passes the air on its way to the chamber. By this system there is realized in five hours' operations what takes six times as long in a blast furnace and its result is that there may be obtained from the chamber direct a stream of steel formed without an appreciable loss of mineral. The carbon chamber is made of coal that France possesses, and therefore there would be no further need of importing coke.

From Japan comes the announcement of a new process by which magnetic sand may be converted

into pig-iron and thence into steel, that has been discovered by Coro Matsukata and Asebu Naito. The new process is carried out by means of combining the sand with coke, using hot gas flames and making ferro-coke, from which iron can easily be taken. The discovery, it is claimed, will not only revolutionize the steel industry in Japan, but of the world.

The fact discovered some years ago (see *YEAR BOOK* for 1915, page 131) that the introduction of approximately 13 per cent of chromium to ordinary carbon steel rendered it impervious to oxidation by air, water, or such acids as are usually met with in household use, including strong vinegar.

The application of this steel to cutlery was only made possible after a great deal of experimenting and study, because, in consequence of the hardening properties of chromium, the steel resulting upset all established rules and practices of the cutlers in the matter of hardening and tempering temperatures. There was also the greatly increased difficulties of forging, as this steel must be forged under a power hammer; so in the introductory period of this material the cutlery manufacturers experienced heavy losses. At first efforts were confined almost exclusively to cutlery, then certain cast household articles, such as stair rods, fire irons, and stove grates were made. Later, various automobile parts made of stainless steel were put on the market. There has long been a demand for a rustless metal in certain engineering parts which come in contact with water and gases, and these are now in the market. The latest development is an entirely new line in stainless steel of table, soup, dessert, and tea spoons and table and dessert forks and the result appears to be eminently satisfactory. The finish, which is produced by machine burnishing, is excellent, and the makers claim that these spoons and forks will wear bright to the end without polishing and that they are immune from the risk of stain or tarnish.

RADIUM. In addition to the very full description of the metallurgy of radium in the United States by Hamilton Foley* the following mention of the Bohemian deposits is given:

Although the radium production in the United States is greater as to quantity, the ores of Jachymov in Bohemia, near the frontiers of Saxony, are richer in quality. It is estimated that the known supply of radium in the Jachymov district will last for twenty years, at the present rate of production. As there are three large mines which are not yet prospected as to depth, and in which the veins of ore widen as they are followed deeper, it is certain that the mining of radium will continue for a much longer period. The Jachymov mines passed in 1912 into the possession of the Austro-Hungarian Government, but they have now become the property of the Czecho-Slovak Republic. The annual quantity of radium produced amounts to about two grams. The net profits to the Government in 1913 were about 1,000,000 crowns. The net profit anticipated for 1921 is about 3,500,000 crowns, which has less foreign exchange value than the pre-war profits. The price of one gram of radium in the home market in 1913 was 588,000 crowns. To-day the price of one gram is about 10,000,000 crowns. As the earnings from the radium mines of the Republic are looked upon as a

* "The Source of Radium," *Bulletin of the Pan American Union*, July, 1921, pages 29-48.

possible source of much profit to the Government, projects are under way for electrifying the shafts and millhouses, as well as enlarging and modernizing the entire plant. There are several by-products of considerable importance. Uranium dyes are produced, also a radio-active watering place is being built in the vicinity of the mines.

POTASSIUM. Samples of salts sent from western Texas early in the year to the laboratories of the United States Geological Survey in Washington contained percentages of potash that suggested the richness of the potash deposits of Alsace and Germany. The samples were obtained from two borings about eighty miles apart, sunk by oil companies in the "Red Beds" regions of Texas, where salt beds, red shales, gypsum, and other materials are associated in strata of nearly the same geologic age and general character as the potash-bearing beds of western Europe. The thickness of the potash-bearing beds in Texas represented by these samples is unknown, and the question remains to be determined whether the deposit is thick enough to furnish potash in as great amount and of as high a grade as those in Europe.

The Secretary of Agriculture in his annual report announces that the experimental kelp plant at Summerland, Calif., the purpose of which is to demonstrate the practicability of extracting potash and useful by-products from the giant kelps, is in active operation and valuable results are being secured. It will be possible when the best methods have been worked out to develop a potash industry on the Pacific coast capable of supplying a considerable part of the nation's need. Two processes for the recovery of potash from certain rocks have recently been developed by the Bureau of Soils, and both are being utilized in commercial practice. The 87,000 tons of potash annually lost from flues and stacks of cement plants are still, in the main, going to waste. Only about 1 per cent was recovered in 1919. A similar situation exists with reference to the collection of potash from blast furnaces. The department is now making a survey of this situation and preliminary results show that the dust from blast furnaces is higher in potash content than the cement dust and that it can probably be recovered more economically. The potash that escapes from these two sources would, if collected in marketable form, go a long way toward meeting the normal potash requirements of the country. There is ample justification, therefore, for the appropriation of sufficient funds adequately to study those phases of the problem which properly come within the scope of the department's activities.

A report describing the processes used in the extraction of potassium salts from the Alsatian potash mines is of interest. The veins of salt are composed of alternating layers of sylvanite of varying richness and of sodium chloride and schist. The deposit is in general fairly regular, except for a few faults, and the inclinations are moderate, running from 0° to 10° and 20° and rarely exceeding 30°. The method of mining consists in the use of electric or air drills, after which explosive charges are placed in the holes. From 500 to 600 grams of explosive are required to the ton of crude salt. The mine cars are drawn by horses, but it is planned to introduce electricity. When the salt arrives above ground it is crushed to a fineness of four millimetres or under, and a large part is

shipped or sold in this form to be spread directly upon the fields. There are two qualities, the sylvanite containing twelve to sixteen per cent potash, and the rich sylvanite containing twenty to twenty-two per cent of potash. Whole shiploads of sylvanite are being sent to Australia. If the salt were refined much less tonnage would be required. The following refining plants are in operation: (1) Amelie, producing 120 tons a day of 80 per cent potassium chloride; (2) Reichslands, 120 tons a day of 80 per cent potassium chloride; (3) Theodore, 90 tons a day of potassium chloride. A very small quantity of potassium chloride of 98 per cent is manufactured for use in chemical works. Roughly, 3 tons of crude salt are required for 1 ton of refined chloride. Between 250 and 300 kilos of coal are required for each ton of refined chloride. The power employed in the mines is almost exclusively electric, and there are only two shafts equipped with steam engines. The electric power is received at Mulhouse. The salts of Stassfurth are less rich in potash on the average than the Alsatian. Moreover, they contain a heavy percentage of magnesium chloride, which is very harmful to plant development and must therefore be eliminated. This elimination complicates the refinement process. Owing to its magnesium chloride content, the German potash salt cannot be used directly on the fields like the potash of Alsace.

From Germany the following has been received:

The summer season of 1921 finds the potash monopoly beset by a business stagnation so aggravated by lack of both foreign and domestic orders that some plants are being forced to close down, while the Potash Syndicate, at its June meeting announced that sales during January-May were 150,000 metric tons short of those in 1920. The chief factors generally viewed as contributing to the situation are: 1, lack of orders from Germany's best customer, the United States; 2, loss of the potash deposits of Alsace and resulting competition in foreign markets; 3, continued prohibition of export to Poland and through Poland to the east; and 4, curtailment of domestic consumption. Stocks of German potash in warehouses in the United States are considered adequate for the time being, and the American Industry developed by the war is regarded as independent, to some extent, of German production. Figures published by the Federal Statistical Bureau point out that while North America imported 248,295 metric tons of pure potash in 1912, imports in 1919 were but 70,129 metric tons.

SODIUM. The condition of chemical industries stimulated by the war, especially outside of the United States, is explained by the following item which was published in August:

The chemical trade in Japan, which flourished exceedingly during the war, has been compelled to undergo extensive readjustment since the armistice, and all companies have suffered a sharp decline in prosperity. As an illustration of this, the soda industry, which increased more than fourfold during the war, may be mentioned. Before the war as much as 80 per cent of the domestic consumption was supplied with overseas goods, and the demand for soda ash is still almost wholly met by imports, but the local production of caustic soda has been increasing yearly since the Russo-Japanese War. The output of 5,000,000 pounds in 1906 increased to



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MME. CURIE

Discoverer of Radium who visited the United States in 1921.





9,500,000 pounds in 1913; on the other hand, imports increased from 19,400,000 pounds to 23,000,000 pounds in the same period. The position of the industry now is that there is an excess of supplies, cost of production is high while foreign goods come in at prices that prevent either the profitable sale of stocks or continuance of manufacture. The situation is such, therefore, that as European and American industrial circles approach their prewar conditions quotations on caustic soda show signs of returning to prewar figures, so that the Japanese trade must come to an end.

NITROGEN. As has already been indicated, the World War emphasized the fact that no effort should be spared to establish national independence in the production of fertilizer materials. This is especially true in the case of nitrogen, which is not only a valuable fertilizer ingredient, but also an essential element in the manufacture of munitions. Of all the nations involved in the war Germany alone had a sufficient nitrate supply within her borders, but England, France, and Italy are now rapidly perfecting plans to make themselves equally secure in this respect. A recent report issued by the department of Scientific and Industrial Research in London shows that there are 50 plants in the world producing nitrogen with a total capacity of 671,300 metric tons. Of these 12 use the arc process, 35 cyanamide process, and 3 the synthetic ammonia process, but of these the United States has only one plant producing fixed nitrogen in each of these classes, with outputs as follows: arc process 300; cyanamide process, 40,000; and synthetic ammonia process, 8000 metric tons as compared with 4000, 120,000, and 300,000 metric tons by the same processes for Germany. The Secretary of Agriculture in his annual report says that increased interest has been manifested in the United States also in the study of methods of fixing atmospheric nitrogen, and the department, through the Bureau of Soils, has actively coöperated with the War Department in this important field. The production of ammonium sulphate from by-product coke ovens and gas plants has greatly increased, but not sufficiently to meet the demand for fixed nitrogen.

FUEL. Concerning peat, especially that obtained in Ireland, a full account from preliminary reports was given in the YEAR BOOK for 1920. (See page 134.) In April a formal report issued under the auspices of the British Department of Scientific and Industrial Research was published and from it the following information concerning by-products is obtained:

Account must be taken of the value of the ammonium sulphate obtained as a by-product, and it will then be seen that when the fuel is used in this way peat for power purposes is in a much stronger position to compete with coal than would appear from thermal considerations alone. Since 1 per cent of nitrogen equals 22.4 pounds of nitrogen a ton of anhydrous peat equals 16.3 pounds of nitrogen, a ton of air-dried peat (25 per cent water) and also 1 pound of nitrogen yields theoretically 4.714 pounds of ammonium sulphate, it follows that 1 ton of air-dried peat (25 per cent water) containing 1 per cent nitrogen on anhydrous value would give theoretically 79.2 pounds of ammonium sulphate. If the recovery of the maximum amount of ammonium sulphate to the ton of

peat is the aim rather than the production of the maximum amount of power, an efficiency of 70 per cent is said to be regularly attained in practice. From the conclusions arrived at by the Fuel Research Board it is estimated that from the one peat area to be exploited in Ireland 100,000 tons of air-dried peat can be obtained each year, and can be sold at 5s. to 6s. a ton at a factory not more than three miles from the bog site. The board recommends the establishment of electric power stations at the bogs and the ultimate reclamation of the peat-denuded area.

Encouraging reports continue to be received showing the satisfactory results obtained in the use of peat as a fuel on Swedish railways, and in evidence of that fact a recent report from the Railway Board of Sweden says that it has taken over the specially constructed plant at Hästlagen bog near Vislanda, with a capacity of 30,000 tons a year and which cost 975,000 crowns. An entirely new method of treating peat on a large scale has been adopted. All the machinery in use, invented and constructed by the engineer in charge, appears to be so well adapted for the purpose that the conversion of peat into a cheap and effective fuel requires only a small working force. The peat is dried in the open air as far as possible. Only the hardest and driest lumps are used for ordinary fuel, the remainder being converted into powder or briquets. The plant was originally intended for the manufacture of peat powder only, but it was found that briquets were so well adapted for fuel that both are now being made. The discovery has also been made that powdered peat becomes a dangerous explosive when subjected to high temperature.

MOTOR FUEL. Search for an inexpensive motor fuel continues in Great Britain and in an official report issued in January, 1921, it was said of gasoline that supplies are being outstripped by the demand; that control is concentrated in the hands of two worldwide combines; and, further, that there is urgent necessity for action to meet the present crisis. The combinations mentioned are alleged to own the bulk of the distributive machinery, so that nothing less than governmental action can affect the situation. Concerning other fuels or sources of power to be substituted, the report says:

Benzol.—In view of the recent abandonment of the gas standard, there should be a statutory obligation on all gas companies, above a certain size, completely to extract the benzol from their gases. **Shale oil.**—The development of existing shale-oil fields should be encouraged by the Government. **Power alcohol.**—It is not suggested that it will be commercially possible to manufacture power alcohol in Great Britain. It can, however, and should be made on a very large scale in the tropical and subtropical parts of the Empire. **Electricity.**—This form of power offers some advantages for town use, but cannot be counted on as an immediate factor in materially reducing the demand for gasoline. **Gas.**—There are types of portable "gas producers" for vehicles which have already passed beyond the experimental stage. Their use should be extended, more particularly for transport lorries, agricultural machinery, and omnibuses. This form of power would appear to be immediately available and opens up the most hopeful avenue of speedy relief. **Steam vehicles.**—There are

several efficient types of steam-propelled vehicles burning coke with a small admixture of coal. These are capable of being usefully employed for long-distance journeys and their extended use is to be desired. When considering alternative fuels, such as benzol and power alcohol, it must be realized that any such substitution will necessarily fail to reduce the price of liquid fuels, unless it includes transport and distribution under some effective form of government control.

With regard to industrial alcohol, a report presented at the meeting of the British Association said with regard to the enormous quantities of waste cellulose material which are produced annually all over the world, certain difficulties have to be overcome. It has to be borne in mind that these sources of alcohol are generally found in inaccessible regions and it was intimated that the initial difficulty of transport has not hitherto received sufficient consideration. Work is proceeding in other directions. In England attempts are being made to utilize the cellulose present in artichoke stalks. In France, experiments are in progress in connection with a tuberous plant which grows in the Andes at an altitude of 6000 feet and has a sugar content comparing favorably with mangolds. The possibility of dealing with cellulose on lines parallel to the Borland process is also being considered.

A series of experiments begun in 1914, but interrupted by the war, have been resumed in Brussels, Belgium, on the use of palm oil in internal combustion motors. The question of motor fuel in the Belgian Kongo is a serious one, since a ton of crude oil delivered at Kainhasa has an estimated price of 2000 francs, as against 1050 francs in Brussels. Palm oil, on the other hand, costs on the native market an average of 25 centimes a kilo, but varies in price between 8 and 40 centimes. The calorific power of palm oil is from 20 to 25 per cent less than that of crude oil, so that a relatively larger consumption of palm oil must be reckoned with, while the comparatively high temperature at which palm oil fuses (37°C) indicates the possibility of rapidly clogging the motor. According to engineers closely connected with the experiments, without constructing a special palm-oil motor, it was necessary to find a machine in which complete combustion is assured by a complete vaporization of the fuel, which should be introduced in a quantity strictly proportionate to the load. It was further essential that the gaseous mixture should be constant, and capable of regulation by a supply of water, varying according to the load and the amount of oil being fed in. Thorough clearing of the exhaust gases was also a requisite. The Belgian colonial company found a two-cycle semi-Diesel motor of Swedish manufacture, developing 10 horsepower at 500 revolutions a minute, that satisfied these conditions, and motors of larger and smaller sizes of the same character have been run on palm oil with good results without special changes for the use of the new fuel. According to analyses by Belgian chemists, palm oil is a mixture of glycerin palmitate and oleate, with some variable quantities of palmitic and oleic acid. It contains about 95 per cent of fatty acids and appears as a pasty substance of yellowish or salmon color. Its calorific power is estimated at 9228 calories and it is inflammable at 210°C . It thus possesses the ad-

vantage of being widely grown and easily obtainable, of large calorific power in small volume, of safety in handling, and of having no damaging effects on machinery in which it is used.

From Brazil comes the information that the current high price of gasoline has led very largely to the consideration of replacing it by alcohol, which is readily obtained as a by-product on the various plantations. It is reported that in Pernambuco there are approximately 80 modern cane-sugar factories, which have about 800 miles of railway, of from .75 to 1 metre gauge, operated by wood-burning locomotives. The fuel problem is becoming a serious one and as a result the sugar-mill operators are turning their attention to the matter of reducing wood consumption and finding substitutes. Consequently great interest is being shown in the substitution of alcohol, which is produced in large quantities on the sugar plantations from the molasses finals. Pernambuco has recently adopted the use of alcohol to which 5 per cent gasoline has been added as an automobile fuel. The manufacturers are interested in using their own inexpensive product for their railways. The current price of alcohol is about \$0.22 a gallon, but the cost to the producer is much less. Some of the planters who have been using the alcohol made on their plantations for automobile fuel have found that pure alcohol of from 41 to 42 degrees satisfactorily answers the requirements of automobile motors, but that it is advisable to make a slight alteration in the carburetor. Alcohol destroys the varnish on cork floaters, and it has been found necessary to substitute metal ones. Users of alcohol fuel have reported that they note no diminution in the power of the motor or its hill-climbing capacity, and that the amount of alcohol consumed is practically the same as the amount of gasoline.

A strong movement is taking place in Cuba to replace gasoline with alcohol as the motive power for self-propelled vehicles. This has assumed such proportions that the drivers of alcohol-propelled light automobiles for hire have petitioned the authorities in Havana to lower the standard rate, as they find that they can reduce existing charges one-third and still make a profit. The alcohol is produced from the waste of sugar and is a Cuban product. While the average cost of gasoline at present in Havana is 50 cents a gallon, that of alcohol varies between 30 and 35 cents.

In South Africa Natalite and Acetol alcohol mixtures continue to be used. The manufacture of another alcohol mixture, "Penrol," will be begun shortly. Alcohol will be derived from maize or mealies (corn), which is one of the largest crops in the country. It is intended to put up a plant with a yearly capacity of 1,000,000 gallons. Among the drawbacks to the development of these alcohol fuels is that the price of alcohol in Europe is so high that it is more profitable to sell the product there than to denature it for motor spirit for sale in South Africa.

Prof. G. Schroeter of Berlin, Germany, announces his discovery of a process to transform naphthalin into tetralin for use as a fuel for automobiles.

DYESTUFFS. Only one item of interest can be presented under this heading. There has developed during the year a widespread complaint against the lack of fastness of dyes in piece goods. A committee of experts was named in September

to carry on an investigation designed to fix responsibility for the complaints. Goods valued at hundreds of thousands of dollars have been turned back because the colors lacked fastness. Complaints have come from all parts of the United States. Statements have been issued defending the American industry, it being contended that the dyes made here were second to no foreign dyes, and that the fault was with the dyers. It was said that the "manufacturer receives merchandise returned by the retailer who complains about the non-fastness of the colors. The dyer says that there is no such thing as fastness of color. On the other hand, the piece goods man says he will give you fast colors if you pay him 15 cents a yard more." The question is how to reconcile the two statements. The general opinion seems to be that American dyes are now as good as the dyes made anywhere, but the cause of the widespread complaint cannot be established. It has been hinted that German propaganda is at work striving to create dissatisfaction with the goods dyed with American dyes. Dr. Charles H. Herty, known as an authority on dyes, quoted from an address delivered in 1912 in New York City by an eminent German chemist in which he said there is no fastness in dyes. Dr. Herty quoted this statement to show that two years before the war the Germans were confronted with the same problem in colors that now disturbs American manufacturers.

RUBBER. The invention of an artificial rubber was reported early in the year from Barcelona, Spain. The inventor was said to be Washington Rossi, an Italian chemist in the Barcelona laboratories. Details of the invention were to be kept secret until the product was subjected to a test in public. The new product was described as possessing all the qualities of natural rubber and could be produced at one-twentieth of the cost of that substance.

UTILIZATION OF RICE WASTE. Hans Wiedemann, of Berlin, Germany, is credited with an invention by which it is expected to derive certain useful products from the hulls of rice. As a result of a simple chemical reaction, involving the application of high temperature after washing and boiling the raw material, there can be obtained cellulose for the manufacture of paper, linoleum, and other products; coke filter material, such as is used in sugar manufacturing; and paraffin, phenolin, carbon dioxide, carbon monoxide, hydrogen, and acetic acid in sufficient quantities to be of commercial use. The recovery of these materials calls for a relatively cheap installation. By steam application it is said that 1000 kilos of waste rice hulls can be made to produce 750 kilos of cellulose. By dry distillation 1000 kilos of rice waste can be made to produce about 400 kilos of coke filter material, and subsequently other products mentioned above. When it is considered that almost one-third, by weight, of a rice crop consists of rice hulls or waste, it will be seen that these processes are capable of attaining a commercial value.

NEW EXPLOSIVE. The Atlas Powder Company of Wilmington, Del., announce a new explosive that cannot be affected by any temperature, according to extensive laboratory and field tests. Heat causes no deterioration. It has a high degree of safety because its qualities of stability prevent it from exploding prematurely, no ordinary blow or shake-up causing it to explode. The new explosive also eliminates the throbbing headaches

induced in the workmen handling ordinary dynamite.

LEATHER FROM CORDITE. It is reported that cordite, considered the most powerful and expensive explosive known, is now being made into artificial leather by a new process developed at the Ford company's engineering laboratories in Detroit, Mich. This process halves the cost of the leather, according to the engineers. The new artificial leather process, using cordite, has been developed after more than a year of experimentation. More than 25,000 square yards of artificial leather for Ford cars is being made daily at the Highland Park plant. It is said that the new process will release more than 1,000,000 gallons of benzol a year for other purposes.

SUBSTITUTE FOR BONE CHAR. Discovery of a satisfactory substitute for bone black, or bone char, the standard material used in decolorizing and refining sugar and various liquids, syrups, and oils, was announced in April by the Atlas Powder Company at Wilmington, Del. After extensive commercial tests with sugar, maltose, and oil the substitute has been proved from twenty-five to thirty times as efficient as bone char. It will even permit the making of white granulated sugar directly at the raw sugar mill, it is said. The substitute is manufactured from cheap carbonaceous raw material such as lignite, which is uniformly carbonized under conditions preventing the pores of the raw material being clogged by deposit of secondary carbon.

SUBSTITUTE FOR CORK. A chemical works at Bruenn-Koenigsfeld has found that turf treated by a special patented process furnishes a material for insulation and building purposes that is said to be, in most respects, not inferior, and in some superior, to cork. The product is reported to be equally light, firm, and sound proof, to possess great insulating properties, and to be damp proof.

SYNTHETIC CAMPHOR. Prof. P. Giraudet of Loyola University, New Orleans, La., announced in September the discovery of a process for the manufacture of synthetic camphor from turpentine. Application has been filed for a patent which will relieve the present Japanese monopoly, it is claimed.

ARTIFICIAL PEARLS. In a report to the French Academy of Sciences M. Bontan shows that the process of formation is the same in the Japanese cultivated pearls as in those found in oysters, except that in the Japanese pearl the core is larger. The method followed by the Japanese is as follows: The process involves the most delicate and skillful manipulation, and it should be carried out only by trained workers. The shell is removed from one pearl oyster and a bead of nacre or other suitable nucleus is laid on the outer shell-secreting epidermis. This epidermis, which is composed of a single layer of cells of microscopic size, is then dissected off the oyster and made to envelop the nucleus as a sac, the neck of which is ligatured. The sac is then transplanted to an oyster and imbedded in its sub-epidermal tissues, the ligature is removed, certain astringents or other reagents are applied to the wound, and the second oyster with its grafted pearl sac, containing the mother-of-pearl bead, is returned to the sea, where it has to remain for several years before a coating of pearl of sufficient thickness is secreted around the introduced bead. In other words the Japanese pearls cannot be held to be artificial but are essentially identical with the

normal pearl. Experts in the United States contend, however, that the cultivated pearl lacks the lustre and pinkish color of the high-class oyster pearl. Under any circumstances an exact diagnosis can be made by an x-ray examination. It is claimed that in the United States the Japanese pearl competes only with imitation pearls and is not handled by the better dealers.

LITERATURE. In the series of volumes forming the Industrial Chemistry Series, there was published in 1921 *Organic Medicinal Chemicals*, by M. Barrowcliff and F. H. Carr. Also a new, revised, and enlarged edition of Comey's *A Dictionary of Chemical Solubilities*, which for 25 years has been the research guide on solubility of inorganic substances. The world of industrial chemists greets with pleasure the first volume of a new, and also revised and enlarged edition of *A Dictionary of Applied Chemistry*, by Sir Edward Thorpe. The new volume runs from "A to Calcium" and the work will be completed in from six to seven volumes.

CHESAPEAKE-DELAWARE CANAL. See CANALS.

CHESS. The feature chess event of 1921 was the victory of Jose R. Capablanca of Cuba, over Dr. Emanuel Lasker of Berlin, who had held the world's championship for twenty-seven years. The match took place at Havana, Capablanca winning four games and drawing ten out of the fourteen played. The eighth American Chess Congress was held at Atlantic City in July, David Janowski of New York City capturing first place with N. T. Whitaker of Washington, second. Jacob Bernstein retained the New York state title in a tournament at Syracuse after a close struggle with H. T. Thomas of Rochester, Edward Lasker won the western championship. The Metropolitan Chess League title went to the I. L. Rice Progressive Club, with the Brooklyn C. C. second. In an international masters' tournament at Budapest, A. Aljeclin, Russia, was victorious over E. Gruenfeld, Austria.

CHICAGO, UNIVERSITY OF. An institution of the higher learning at Chicago, Ill.; founded in 1891, largely through gifts of John D. Rockefeller, who has continued to aid the university. The enrollment for the fall of 1921 was 6222, of whom 3331 were men and 2891 women. Of this total 1364 were in the university college, 859 in the graduate schools of art, literature, and science, 179 in the divinity school, 246 in medicine, 317 in the law school, 227 in the college of education and 651 in the school of commerce and administration. In the summer quarter of 1921 the enrollment was 6455 of whom 3011 were men and 3044 were women. The faculty numbered 355. The productive funds amounted to \$29,503,076 and the total income for 1920-21 \$3,232,643. President, Harry Pratt Judson, LL.D.

CHICAGO CIVIC OPERA ASSOCIATION. See MUSIC, Opera.

CHICAGO OPERA ASSOCIATION. See MUSIC, Opera.

CHICAGO SYMPHONY ORCHESTRA. See MUSIC, Orchestras, Novelties.

CHICKEN POX. See VETERINARY MEDICINE.

CHILD LABOR. UNITED STATES. In 1920, according to figures made public by the United States Department of Labor, through its Children's Bureau, 76,194 children took out permits to go to work in twelve representative American cities.

In 1913 the number of children receiving permits in the same cities was only 67,169, indicating an increase of over 13 per cent between 1913 and 1920, while the increase in population of these cities was estimated to be 14 per cent. These cities are Baltimore, Bridgeport, Buffalo, Manchester, Minneapolis, New Haven, New Orleans, New York, Rochester, St. Louis, Toledo, and Waterbury. More children received permits in 1920 than in any other year since 1913, except 1918 when war production was at its height. The year 1918 was the peak year in the steady rise of child employment which began in 1915 as soon as the effect of foreign orders for war goods made itself felt in this country. Of 23 cities for which figures were available for both years, all except one showed an increase in 1916 over 1915, ranging from 14 per cent in the case of Baltimore to 167 per cent in the case of Toledo. In 1917, 19, and in 1918, 24 out of 23 cities furnishing information, reported increases over the preceding year in the number of children taking out employment certificates. In 1919 a decrease occurred in 25 out of 29 cities. In 1920, however, increases were again recorded in 18 out of 29 cities. The increase in 1920, said to be due to the increased cost of living and to labor shortage, was confined to the first half or three-quarters of the year. During the last half of the year, only 9 cities out of the 26 for which figures could be secured showed an increase in the number of children receiving work permits. In some cities better enforcement of the law requiring employment certificates accounts for increases in the number of permits issued, and while, in the twelve cities for which figures were available for the period 1913-20, the number of children taking out certificates increased in proportion to the increase in population, it could not be stated positively, any more than it could be denied, that the number of children actually going to work in 1920 increased in like proportion over the number going to work in 1913.

STANDARDS IN THE SEVERAL STATES. The legal standards adopted by the various States to protect children from the hazards of too early employment are summarized by the Children's Bureau as follows: In all except 4 States the minimum age for work at least in factories and often in many other employments is placed as high as 14 years, and 7 States have an age minimum of 15 or 16 years. Exemptions exist in most of these States, but they apply in many cases to children employed outside school hours or during vacations. Twenty-nine States have recognized the 8-hour day standard for children under 16 by prohibiting them from working longer hours in certain occupations, or by extending this prohibition to all gainful employments, usually, however, exempting housework and work on farms. Of the other States, nearly half limit the working hours in the regulated occupations to 54 or less a week. The 11-hour day still exists in 2 States, with a weekly maximum of 60 hours. Forty-one States have some prohibition of night work applying to children under 16, and of these 17 prohibit such work without exemptions, except in some cases for agricultural pursuits and domestic service. Eighteen States, including some of the principal industrial States, require a child under 16 to have a physician's certificate of physical fitness before he can obtain an employment certificate, and 10 others permit the certificate-

issuing officer to impose this requirement in his discretion. For work in mines the general minimum age standard is 16, but 10 States still permit the employment of boys 14 years of age, and 6 have no minimum age for such work.

Special studies of the Texas cotton belt brought out the fact that young children were engaged in hoeing and chopping the cotton, and even in heavier kinds of field work, such as plowing, harrowing, and cultivating. Practically every child ten years of age or over in the sections studied was employed in the fields at some time during the year; ten hours or more was the average working day, during the season, reported for more than half the children, and many reported an average working day of 12 hours or even longer. Although most of the children worked only a few months, much of the work falls at a time when school is in session. Teachers reported that a half or third of the children who should have been in school by September did not register until November or later. Illiteracy on the part of father or mother or both was reported from 7 to 9 per cent of the white families and about a third of the colored families visited. Many of the coming generation will be likewise handicapped if field work continues to keep them out of school.

STATE LEGISLATION. Wisconsin passed laws making it unlawful to advertise for the labor of any child during school hours in an employment for which a labor permit is required, without specifically stating the minimum age of the child, which age must be above that requiring labor permits. The violation of the law carried a penalty of from \$10 to \$100 per day. A law also provided that no permit should be issued unless a child had a certificate from the superintendent of schools or principal of the school last attended showing that the child had successfully passed the eighth grade or had attended school for nine years above kindergarten grade. Missouri passed a law prohibiting the employment of children in certain occupations, providing for the issue of labor permits in certain cases, and prescribing the powers and duties of the board of education and State industrial inspectors. New Mexico passed an act regulating the employment and hours of labor of children and imposing a penalty for violation. In Texas the act of 1920 pertaining to the employment of women and minors and establishing an industrial welfare commission in charge of such employment was repealed on account of defects in the law that rendered its execution impossible. Measures amending or amplifying existing legislation respecting child labor and child welfare were passed in California, Connecticut, Massachusetts, and New York. Indiana passed an act concerning school attendance and the employment of minors, fixing penalties for the violation and repealing conflicting laws. In Minnesota a measure was passed regulating certain occupations of children in streets and public places. In Ohio an act was passed relating to the duties of boards of education, compulsory education, the employment of minors, the establishment of part time schools, the school census, and penalties for violation, and amending existing laws on these subjects. In Hawaii an act was passed regulating the hours of labor of children.

CHILD WELFARE IN BELGIUM. Through the second International Conference on the Protection of Childhood, held at Brussels from July 18

to July 21, the attention of the world was called to the programme Belgium is working out for the conservation of childhood. Even during the years of occupation, when the government had left the Belgian soil and the only central co-ordinating agency was the voluntary "Comité National," public-health activities were started on a hitherto unknown scale, and for the first two years there was an actual decline in infant mortality. The Children's Welfare League, which had begun to function to a limited extent before the war, developed in the midst of the most difficult circumstances until even the smallest village was reached. In spite of these efforts, the average child was, at the time of the armistice, one full year backward in normal development; the weight of the average Brussels school boy was three pounds below normal, and of the average school girl, seven pounds. The first step in the medical reconstruction of industry was the establishment of an independent Labor Medical Service, which includes in its functions the protection of expectant and nursing working women and the care of the health of working children. The service immediately formulated a constructive programme which enlisted the coöperation of all agencies concerned in the promotion of public health, including the health of working mothers and their children. In the United States, 18 States provide for the physical examination of every child entering industry, but no State has provided for examinations of working children at regular intervals. Belgium has adopted the advanced programme of a medical examination for every juvenile not later than a month after he has entered an industrial occupation, to be repeated once a year until the child reaches 18, and oftener in case of disease.

Belgium has realized that health protection in the community must go hand in hand with health protection in industry. This involves general public health work; child welfare; housing; the restriction of alcohol consumption; and education and recreation, both for adults and children. A national children's board has been established, which is maintained by public and private funds, and which supervises and supports child welfare organizations meeting certain conditions. The child welfare programme includes the periodical free examination of children under three years of age brought by their mothers for examination; the establishment of free medical dispensaries for expectant mothers; the diffusion of knowledge relating to infant health and maternal nursing; and the supervision of boarded-out children under seven years of age. The cost of child welfare work will be borne one-half by the state, one-fourth by the province, and one-fourth by the municipality. Provincial and municipal boards are appointed by the national boards, and advisory committees are provided for.

CHILD WELFARE. See CHILD LABOR.

CHILDREN'S COURTS. See JUVENILE COURTS.

CHILE. A South American republic on the western coast of the continent extending along the Pacific to its southern extremity from Peru. Capital, Santiago.

AREA AND POPULATION. The length from the Bolivian border to the southern limit of South America is 2628 miles and the average width from the crest of the Andes to the ocean is 177

miles. Area, 289,829 square miles. In the census taken in Chile on Dec. 15, 1920, the population was given as 3,754,723—an increase of 505,444 over the census of 1907. This denoted an annual increase of 1.20 per cent during a lapse of 13 years, which was consistent with the uniform and constant growth which the Republic has experienced during the past 50 years. Statistics showed that in the period from 1875 to 1885 an annual gain in population was made of 1.18 per cent and from 1885 to 1907 a gain of 1.21 per cent. Classified as urban and rural the population was shown by the census to be 46.60 per cent urban—that is, there are 1,749,562 persons living in cities and towns of over 1000 inhabitants and 2,005,161 persons in rural districts. This proportion of urban population showed a marked increase from census to census, and reflected the tendency toward concentration in the cities. The percentage of urban population as recorded in 1885 was 34.30 per cent; in 1895, 38.60 per cent; in 1907, 43.30 per cent; and in 1920 as noted above, 46.60 per cent. In the following table the urban and rural population is given by Provinces:

Provinces	Urban population			Rural population		
	Males	Females	Total	Males	Females	Total
Tacna.....	14,478	10,591	25,069	8,279	5,564	13,843
Tarapaca.....	23,455	22,377	45,832	33,483	21,238	54,721
Antofagasta.....	41,744	38,258	80,002	57,747	34,581	92,328
Atacama.....	10,253	13,144	23,397	13,474	11,542	25,016
Coquimbo.....	23,263	31,362	54,625	51,070	54,561	105,631
Aconcagua.....	16,869	20,827	37,696	40,205	39,013	79,218
Valparaiso.....	127,798	137,956	265,754	28,496	26,148	54,644
Santiago.....	246,521	300,291	546,812	75,120	63,426	138,546
O'Higgins.....	22,067	23,872	45,939	40,295	32,357	72,652
Colchagua.....	20,131	21,635	41,766	62,975	61,601	124,576
Curico.....	12,201	15,434	27,635	40,161	40,352	80,513
Talca.....	20,890	26,626	47,516	44,302	42,139	86,441
Maule.....	11,235	14,813	26,048	43,160	44,023	87,183
Linares.....	12,930	17,400	30,330	45,380	43,574	88,954
Nuble.....	25,181	34,238	59,419	56,854	54,152	111,006
Concepcion.....	67,288	75,164	142,452	53,877	51,282	105,159
Arauco.....	5,393	6,538	11,931	24,632	23,670	48,302
Bio Bio.....	11,563	14,943	26,506	41,852	38,714	80,566
Malleco.....	19,150	22,230	41,380	43,499	36,550	80,049
Cautin.....	24,994	29,196	54,190	72,333	67,105	139,438
Caldivia.....	25,783	27,135	52,918	65,090	57,133	122,223
Llanquihue.....	14,963	16,538	31,501	55,429	50,276	105,705
Chilo.....	4,373	4,069	8,442	49,050	52,839	101,889
T. de Magallanes.....	12,394	10,008	22,402	5,071	1,487	6,558
Total.....	814,917	934,645	1,749,562	1,051,834	953,327	2,005,161

The total number of foreigners included in the census of 1920 was 115,763 as against 134,524 in 1907, a decrease of 18,761. The greatest decline during the period 1907-20 was among the Peruvians, 15,088 of them having emigrated; they were followed by Bolivians, numbering 6011. The movement of population in 1919 was as follows: Births, 144,980; illegitimate births, 55,706; deaths, 137,538; marriages, 21,471. The populations of the principal cities as estimated in 1919 were as follows: Santiago, 424,993; Valparaiso, 218,465; Concepcion, 74,808; Antofagasta, 69,175; Iquique, 47,677.

EDUCATION. Education is free and was made compulsory, August 26, 1920. In 1919 there were: 3061 public primary schools with 320,898 pupils and 7038 teachers; 293 private primary schools with 1012 teachers and 41,143 pupils; 90 public secondary schools with 32,598 pupils; 136 private secondary schools with 22,295 pupils; 15 public rural schools with 1955 pupils and 409 teachers; 11 commercial schools with 179 teachers and 2974 pupils. Besides these there

were various special schools including agricultural and professional schools and schools of mines. For higher education there are: The state university, known as the University of Chile; the Catholic University, the National Institute of Santiago; and the lyceums and colleges in the provinces. The government made special efforts in 1921 to promote agricultural education. Among its measures to this end was the recommendation that school children should immediately begin agricultural or stock raising work at their own homes or in the vacant lots of the neighborhood. The number of children enrolled in the schools was placed by the government at about 500,000. Teachers were called upon to promote the teaching of gardening and to obtain the coöperation of the children.

PRODUCTION. The agricultural zone is in the centre of the country and contains 42,183,663 acres, the number of farms in 1919 being 96,794. The leading crops in respect to acreage in 1918-19 were, in the order of their importance: Wheat, barley, beans, corn, oats, potatoes, and peas. By far the most important of these is

wheat, the production in 1918-19 being 11,459,500 cwt; in 1919-20 the wheat production was 552,652 tons, and the next crop in order of production was barley with 88,825 tons. The wine production in 1918-19 was 36,573,252 gallons. The livestock, Jan. 1, 1920, was: Cattle, 2,163,141; sheep, 4,500,196; goats, 459,606; horses, 319,718; pigs, 292,431. The grain crop for 1921 was estimated as follows: Wheat, 6,257,062 quintals (Chilean quintal equals 101.43 pounds); barley, 1,172,388; oats, 394,114. Projects were being carried out for important works of irrigation. By far the most important mineral production commercially is sodium of nitrate which has been the mainstay of Chile's prosperity, being the chief export and the chief source of government revenue. It is found chiefly in the desert of Atacama, extending a distance of about five hundred miles and lying at an altitude from two thousand to six thousand feet above sea level. (See below under *History*.) The production in 1920 was 2,606,571 metric tons, and the exports in that year amounted to 2,870,809. The

exports in 1921, were only 1,100,000 metric tons. New nitrate resources were reported toward the close of 1921, a region having been found in the province of Tarapaca which was said to contain rich nitrate beds. Chile has made more progress in manufacturing than any other country on the western coast of South America. Santiago is the chief industrial centre. A feature that drew much attention in 1920 and 1921 was the development of German interests in the south particularly at Concepcion, Penco, and Valdivia where woolen mills, flour mills, and railway shops were established and appeared to be rapidly developing.

COMMERCE. Total trade in 1920 was 1,246,600,307 gold pesos including exports, 791,521,373, and imports, 455,078,934—an increase in exports over 1919 of 474,517,318 and of imports of 53,754,939. Reduced to United States values at the rate of one peso equal to 36.5 cents, the trade in 1920 and 1921 was as follows:

	Imports	Exports	Total
1920.....	\$166,103,811	\$288,805,301	\$454,909,112
1919.....	146,483,331	115,706,480	262,189,811
Increase....	19,620,480	173,098,821	192,719,301

The following tables give imports and exports by leading articles in 1919 and 1920:

	1919 Pesos, gold	1920 Pesos, gold	Gain or loss Pesos, gold
Coal and mineral fuels.....	14,550,021	25,519,121	+ 10,969,100
Live animals.....	4,566,585	11,412,305	+ 6,845,720
Cereals.....	5,116,383	9,109,716	+ 3,993,333
Coffee, tea, etc.....	12,825,098	17,423,788	+ 4,598,690
Sugar.....	25,055,034	28,687,817	+ 3,632,783
Wines and liquors.....	3,676,565	5,087,464	+ 1,410,899
Wearing apparel.....	15,708,794	17,773,746	+ 2,064,952
Piece goods.....	64,696,513	61,162,853	- 3,533,660
Bags and bagging.....	23,526,987	19,087,100	- 4,439,887
Yarns and thread.....	10,284,716	10,207,977	- 76,739
Drugs and medicines.....	8,186,664	8,527,191	+ 340,527
Industrial oils.....	15,884,696	20,558,539	+ 4,713,843
Paints, dyes, and colors.....	4,824,117	6,484,928	+ 1,660,811
Explosives.....	2,923,276	4,509,152	+ 1,585,876
Steel and iron, bars, etc.....	7,401,861	6,296,792	- 1,105,069
Other metals, bars, etc.....	1,945,224	3,647,147	+ 1,701,923
Builders' hardware and structural iron.....	5,726,356	7,360,159	+ 1,633,803
Manufactures of iron and steel.....	19,625,142	20,348,128	+ 822,986
Mining machinery.....	11,119,053	5,553,611	- 5,565,442
Agricultural machinery.....	3,408,354	5,052,304	+ 1,643,950
Manufacturing machinery.....	10,352,703	12,028,810	+ 1,676,108
Motors, boilers, etc.....	4,487,352	4,538,826	+ 51,474
Electrical goods.....	8,780,018	6,085,598	- 2,694,420
Railway material.....	12,427,352	8,581,103	- 3,846,249
Automobiles and carriages.....	9,782,239	10,136,938	+ 354,699
Pottery and glassware.....	7,042,429	9,037,966	+ 1,995,537
Leather manufactures.....	3,903,598	2,933,230	- 970,368
Paper and cardboard.....	8,363,851	16,030,617	+ 7,666,766
Metals, copper, etc.....	50,639,302	100,601,750	+ 49,962,448
Nonmetals, borate of lime, etc.....	6,224,292	19,196,736	+ 12,972,444
Nitrate.....	127,103,954	535,602,880	+ 408,498,926
Wool.....	21,924,754	31,030,219	+ 9,105,465
Hides, horns, etc.....	13,383,302	13,543,855	+ 160,553
Plants, horns, etc.....	4,001,819	2,093,575	- 1,908,244
Cereals.....	18,622,899	15,159,495	- 3,463,404
Legumes.....	10,663,465	6,606,256	- 4,057,209
Fruits.....	4,275,266	3,872,310	- 402,956
Forage.....	2,319,041	3,395,531	+ 1,076,490
Flour.....	7,326,525	5,325,904	- 2,000,621
Preserved foods.....	6,335,993	4,445,546	- 1,890,447

The leading countries of import in 1920 were as follows: United States, 140,270,665 pesos; Great Britain, 116,166,298 pesos; Peru, 33,968,124 pesos; France, 28,272,712 pesos; India, 24,148,285 pesos; Germany, 21,074,388 pesos, and Argentina, 17,053,117 pesos. The leading countries of export in 1920 were as follows: United States, 345,684,712 pesos; Great Britain, 164,424,175; France, 31,712,886; the Netherlands, 20,848,423;

Argentina, 17,454,000; Spain, 16,938,294; Japan, 14,973,701.

FINANCE. The Chilean budget for 1922 as sent to the Congress by the executive amounted to 320,924,350 paper pesos and 65,458,054 gold pesos of 18d. From these amounts there should be deducted 1,684,650 paper pesos and 14,033,326 gold pesos, which the Departments of Finance and Industry and Public Works expected to receive from special sources. The combined revenue for the year 1922 was estimated at 182,531,115 paper pesos and 57,507,000 gold pesos, which would leave a deficit of 121,502,900 pesos. The foreign debt, Jan. 1, 1921, was 29,675,080 pesos, and the internal debt, 59,794,092.

RAILWAYS. The total railway mileage in 1918 was 5607, including 2445 of private owned line, the rest being owned by the Government. The post offices in 1919 numbered 953. In 1921 the Chilean Government sanctioned the consolidation of the Chilean and Argentine sections of the Transandine Railway, from Los Andes on the western slope of the Cordilleras, by way of Caracoles on the Chilean frontier, to Mendoza on the eastern or Argentine side, under a single management.

Financial as well as operating and political conditions also were involved and the new law

provided for replacing Chilean Transandine Railway bonds with Chilean Government bonds to the value of some \$4,000,000, with guaranteed interest at the rate of 8 per cent. As a consequence the state will receive 70 per cent of the stock of the company and will take an active part in the administration of the road. The Chilean Transandine proposed to issue new bonds to the extent of about \$2,500,000, to be used in making the

necessary improvements in connection with the consolidation.

The financial arrangements made by the two governments will permit of many needed improvements. Tunnels were to be lengthened and more adequate protection against avalanches constructed; new and modern rolling stock and equipment was to be purchased, the railway shops were to be modernized, and electrification of the line was to be undertaken. Furthermore new and liberal tariff laws and regulations will encourage the free interchange of traffic between the two nations, hitherto hampered by protective tariffs, and will permit the natural flow of international trade between the territories served by the lines. All material used for construction, as well as rolling stock and equipment imported into Chile, was to be exempt from custom duties. Late in the year it was announced that an American company had obtained a contract from the Chilean Government to electrify 233 track miles of the State lines between Santiago and Valparaiso and Llay Llay and Los Andes. This project which had been under consideration for over 10 years involved an expenditure of \$6,500,000, and called for completion of the work within two years.

The Santiago-Valparaiso division was the most important in the State railway system, and it was estimated that electrification would result in an annual saving of more than 100,000 tons of coal, and would probably permit the handling of a greater volume of traffic over the line connecting the capital and the country's chief port.

It was proposed to supply electrical energy from five sub-stations between Santiago and Valparaiso, having a total capacity of about 60,000 horsepower. The 3000-volt direct current system will be employed with overhead trolley wires to furnish power to the locomotives, of which there will be 59, ranging from 39 to 112 tons each. A concession was granted by ministerial decree on June 30 to the Nitrate Railways, a British company serving the nitrate oficinas in northern Chile, for 50 more years of operation together with a 35 per cent increase in rates. This concession later was suspended pending the determination of its legality. At the close of the year the Antofagasta-Bolivia railway was laying a double track in certain of its sections, and in other sections a third rail in order to admit of wide gauge traffic.

DEFENSE. There is compulsory military service from the eighteenth to the forty-fifth year, inclusive. The total strength of the Chilean army in 1920 was 1996 officers and 21,180 men. The principal vessels of the Chilean fleet were: The *Almirante Latorre*, a dreadnought with a displacement of 28,000 tons; the *Capitan Prat*, a pre-dreadnought; and the two armoured cruisers, the *Esmeralda* and the *O'Higgins*. See NAVAL PROGRESS.

GOVERNMENT. The executive power is in the president assisted by a council of state and a ministry divided into six departments; the legislative power in a congress consisting of a senate of 37 members elected by popular vote by provinces for six years, and a chamber of deputies of 118 members elected directly by departments for three years. President in 1921, Senor Don Arturo Alessandri, who assumed office, Dec. 23, 1920.

HISTORY. Congress opened, June 1. President

Alessandri in his address referred especially to the long-standing boundary dispute between Chile and Peru in respect to Tacna and Arica and proposed that a plebiscite should determine whether these districts should remain Chilean or become Peruvian. In respect to boundary questions affecting any of the nations on the west coast, he proposed a conference of representatives from Chile, Colombia, Ecuador, and Peru. Of domestic measures the following were proposed by him: The creation of the office of vice-president; separation of church and state; woman suffrage; state control of the nitrate industry; reorganization of the foreign office.

DISPUTE WITH PERU. On June 1 the question of Tacna-Arica was again raised in connection with the plebiscite, and the subject was still under debate at the close of the year. It was referred to the League of Nations and the Geneva Assembly took up its discussion in September. Bolivia whose interests were involved on account of her desire to secure a portion of the sea coast was inclined on the side of Peru. The subject was referred to a committee of neutrals. On December 20 Chile requested Peru to consent to a plebiscite. On December 26 the Chilean Government accepted Peru's proposal that the two countries should send ministers to the United States to confer with the State Department with a view to an arrangement for the settlement of the dispute between Chile and Peru. On December 30 it was learned that the Chilean Government had concluded that a further exchange of views between Chile and Peru was useless. Several notes had passed between the two governments, and the response of the Peruvian Government to Chile's last note having been unsatisfactory, the negotiations were broken off. According to the Chilean point of view responsibility for this rested on Peru. It was charged that Peru stood in the way of the only means of settling the dispute, namely, a plebiscite. Chilean authorities said the Government would not accept a revision of the treaty of Ancon, but that it was ready to arbitrate differences of opinion in respect to the conditions of the plebiscite. The Peruvian Government according to Chile was unwilling to stand by the article of the treaty which provided for the plebiscite under certain conditions, but hoped to revise the treaty itself. For thirty years Chile had been endeavoring to agree on a basis for the plebiscite with Peru. Peru was proposing to submit the dispute to arbitration. Chile was willing to submit the basis of the plebiscite to arbitration, but the Government of Peru wished the entire treaty to be submitted and the entire Pacific question to be raised. The Bolivian Government had also taken a hand in the affair on the ground that the matter to be arbitrated was the Pacific question. Bolivia hoped to secure a port on the Pacific as the result of the arbitration. Bolivia had no concern in the matter according to the Chilean point of view, since the provinces were almost exclusively occupied by Chileans and Peruvians. The Chilean Government claimed 30,000 Chileans as against only 7000 Peruvians in the disputed provinces. For the antecedents of this question, see preceding YEAR BOOKS.

ECONOMIC CONDITIONS. The nitrate and copper industries suffered as a result of lack of labor; while there were sales abroad of foreign stocks of nitrate, sales in Chile had not been

resumed. The Government policy of road-building met with a check, the funds having been exhausted and the Government declared that it had no intention of beginning any new public works. Measures of economy in the Government's finances were being carried in view of the increasing deficit and taxation and a loan were under discussion toward the close of the year. The electrification of the central section of the Chilean state railway was provided for by a contract with an American company, amounting to some seven million dollars. Reports of extensive deals in nitrates with Germany were published in 1921.

CHINA. A Far Eastern state under a republican form of government, since Feb. 12, 1912, situated in the eastern part of Asia on the Pacific ocean. Capital, Peking.

AREA AND POPULATION. China proper contains eighteen provinces. Besides this the territory also includes the so-called New Dominion of Sinkiang or Hsinchiang, Manchuria, Mongolia, and Tibet; but over Tibet and Inner Mongolia only loose authority is exercised, while Outer Mongolia was recognized as self-governing in October, 1912. See these titles and see also the *YEAR BOOK* of 1917 for a summary of changes after 1897. No later figures were available than those are given in the preceding *YEAR BOOK*. The area including all the divisions above named is estimated at 3,913,560 square miles. The estimates of total population vary from 300,000,000 to 430,000,000, the estimate commonly taken being that of the former American Minister at Peking, Mr. Rockhill, who placed the population exclusive of Tibet and Mongolia, at 325,000,000. British estimates place it at a lower figure, namely, at 320,650,000, while one of the higher estimates is that of the Chinese Maritime Customs which place it at 439,405,000 including Manchuria, which has been placed at 19,290,000. Peking has a population of more than 1,000,000 including about 2000 foreigners. The principal ports with a population of over 500,000 in 1918 are: Hankow, 1,443,950; Shanghai, 1,000,000; Canton, 900,000; Tientsin, 800,000; Hangchow, 684,137; Ninpo, 670,000; Foochow, 624,000; Changsha, 535,800; Soochow, 500,000.

SHANTUNG. The province of Shantung which early in the war was occupied by the Japanese who drove out the Germans has an area of about 55,970 square miles, with a native population of about 25,810,000. The railway system has a mileage of only 245. According to Japanese assertions, the Japanese numbered only 22,000 which would be reduced by about 4000 when the Japanese troops were withdrawn from the railway. Shantung has been ever since the opening of the Peace Conference the subject of acrimonious discussion, owing to the conflicting claims of China and Japan, and it was prominently before the public all through the year, and one of the leading questions before the Disarmament Conference at Washington. See preceding *YEAR BOOK* and article on *WAR OF THE NATIONS* in the present volume.

RELIGION AND EDUCATION. There are three forms of native religion: Confucianism, Taoism, and Buddhism, but Mohammedans are found in all the provinces, being most numerous in Kansu, Chihli, Singkiang, and Yunnan. The total number of Mohammedans has been estimated at from 5,000,000 to 10,000,000. The

majority of the people are Buddhists. No complete figures for education were available but the number of schools and scholars has been reported latterly as increasing. In 1918-19 the number of schools was placed at 134,000 with 5,500,000 pupils, these representing only the schools in which modern education is adopted. There is a university at Peking, established in 1898 by the government and reorganized in 1917.

PRODUCTION. The main interests are agricultural and the holdings are for the most part small. Methods of farming are primitive and tend to intensive rather than extensive culture. The leading crops are wheat, barley, corn, millet, and other cereals, peas and beans, rice, cotton, sugar, and silk. Fruit-growing is extensively carried on and a great variety of fruit is raised. Of late years cotton and woolen mills have increased and silk-weaving has developed. Coal abounds in most of the provinces as well as in Manchuria and the resources of China in that respect are considered the most important in the world. Iron ore is also abundant, the annual production being about 469,000 tons. The deposits at Tayeh near Hankow are classed among the richest in the world. Petroleum is worked on the Upper Yangtse and in the province of Chensi. Copper is plentiful, Yunnan being reputed among the richest copper fields in the world. There is an extensive mining of tin which is the chief mineral export. Other mineral products produced in considerable quantities are antimony, gold, silver, and lead. The annual consumption and production of coal was placed at 23,000,000 net tons in 1919 and the exports and imports each at 1,500,000. In the north, coal is exported and in the south imported. Over half of the total output comes from native mines worked by native methods and is used for domestic purposes. Nearly all of the coal used for industrial purposes is produced from a small number of mines worked by modern methods. The annual production of tobacco in China, including Manchuria, is estimated between 300,000,000 and 500,000,000 pounds, with an average yield of 1000 pounds per acre.

COMMERCE. In 1919 the foreign trade was as follows: Imports, 679,529,544 Haikwan taels; exports, 663,341,274 Haikwan taels; total, 1,342,870,818 Haikwan taels. Complete figures for 1920 were not available but the following information was supplied by the United States Bureau of Foreign and Domestic Commerce: In 1920, Chinese imports amounted to 762,250,230 Haikwan taels, as compared with 646,997,681 in 1919 and America's share in 1920 was 143,199,000 as compared with 110,237,000 in 1919. The increase was significant in view of the disturbances in internal affairs and the commercial depression throughout the world. The chief commodities among the 1920 imports were cottons and cotton manufactures. In metals the largest imports were iron and steel bars, tin plates, and iron and steel sheets and plates. Other imports of importance were kerosene, sugar, machinery, cigarettes, raw cotton, indigo, dyes, fish and fish products, paper, and tobacco. No complete figures for the trade of 1920 were available. But the following information in respect to the commerce of the treaty ports in that year was supplied by the United States Bureau of Foreign and Domestic Commerce:

The total value of foreign goods imported into Shanghai in 1920 reached 390,154,115 Haikwan taels, of which amount 383,917,526 Haikwan taels worth was imported from foreign countries and 6,236,589 Haikwan taels worth was imported from Chinese ports. About 15,234,376 Haikwan taels worth of goods were reexported to foreign countries and Hongkong, and 150,367,051 taels worth to Chinese ports (chiefly to northern and Yangtze ports), so that the net total of foreign imports were 224,552,688 Haikwan taels. The net foreign imports were over 100,000,000 Haikwan taels in advance of 1919 and over 135,000,000 more than 1917. The total exports of local origin in 1920 amounted to 232,664,201 Haikwan taels as compared with 140,119,734 Haikwan taels in 1917, 175,089,475 Haikwan taels in 1918, and 237,721,719 in 1919. The net value of the trade of the port (i. e., foreign and Chinese imports less reexports, and Chinese exports of local origin) for the past four years has been as follows: 1917, 276,411,418 Haikwan taels; 1918, 323,998,501 Haikwan taels; 1919, 410,748,767 Haikwan taels; and 1920, 511,915,033 Haikwan taels. These figures showed a remarkable return of Shanghai's trade, for during 1920 the markets were surfeited as a result of injudicious and speculative buying abroad, and Shanghai was also suffering from the world depression. There were, moreover, the disastrous fall in silver and the famine.

According to the Commissioner of Customs at Newchang the net value of the trade of that port passing through the Maritime Customs in 1920 was 46,129,768 Haikwan taels, exceeding that of the previous year by 4,788,482 Haikwan taels. The revenue collection for 1920 amounted to 729,945 Haikwan taels, a decrease of 17,582 taels compared with 1919. The net value of foreign imports was 15,635,628 Haikwan taels, a gain of 4,315,270 Haikwan taels as compared with 1919. The value of Chinese products exported abroad declined by 7,253,000 Haikwan taels, compared with the figures for 1919. Native exports coastwise, however, increased in value by about 3,000,000 Haikwan taels, owing to the brisk demand for Chinese ginseng, beans, and bean cake from the southern ports. The value of Chinese imports advanced from 11,795,479 Haikwan taels in 1919 to 16,499,596 Haikwan taels. The value of transit trade inward, which totaled 3,000,000 Haikwan taels, shows an increase of some 50 per cent over the figures for 1919, and the transit dues collected during the year advanced by about 1472 Haikwan taels.

In 1920 the net value of trade of Antung was 63,071,523 Haikwan taels. The entrances and clearances of steamers and launches aggregated 359,862 tons, and of sailing vessels, 11,692 tons, showing a grand aggregate of 371,554 tons. This was the highest tonnage yet recorded, although the actual number of vessels was the smallest since 1917. The gross value of imports of foreign goods during 1920 was 35,111,440 Haikwan taels compared with 32,780,273 in 1919. Of these imports 26,255,905 were destined for the interior, leaving 8,855,535 Haikwan taels to represent local consumption. The value of foreign goods reexported amounted to 945,506 Haikwan taels, making the net importation 34,165,934 Haikwan taels. All except 20,477 of the reexports were to foreign countries. Native products exported amounted to 25,118,566 Haikwan taels, a reduction of 317,870

Haikwan taels from the 1919 figures. The value of shipments from the interior passing through Antung by rail for Chosen and Japan was 5,644,205 Haikwan taels, leaving a balance of 19,474,361 Haikwan taels to represent the value of local exports. Chinese goods, chiefly from Chefoo and Shanghai, arrived valued at 3,876,932 Haikwan taels, of which 89,909 Haikwan taels were reexported; the net import was accordingly 3,787,023 Haikwan taels in comparison with 3,952,950 Haikwan taels during 1919.

The net value of the trade of Nanking for 1920 reached 53,323,696 Haikwan taels, which exceeds the total of the previous record year, 1919, by 9,176,605 and that of 1918 by 30,327,930 Haikwan taels. In the revenue branch, duty was paid under seven flags, the largest portion falling to the British, amounting to 454,682 Haikwan taels; Chinese, 156,773; Japanese, 21,243; American, 67,286; and others, 678 Haikwan taels. The total tonnage exceeded the record tonnage of the previous year by 300,722 tons, while 434 ocean-going steamers of 610,312 tons, entered and cleared, against 326, of 290,766 tons, in 1919. Imports were: Foreign, 4,411,399 Haikwan taels; Chinese, 17,452,783 Haikwan taels, a total advance of 4,500,000 over 1919 and almost twice the total of 1918. Exports showed similar increases, the total value being 25,022,045 Haikwan taels.

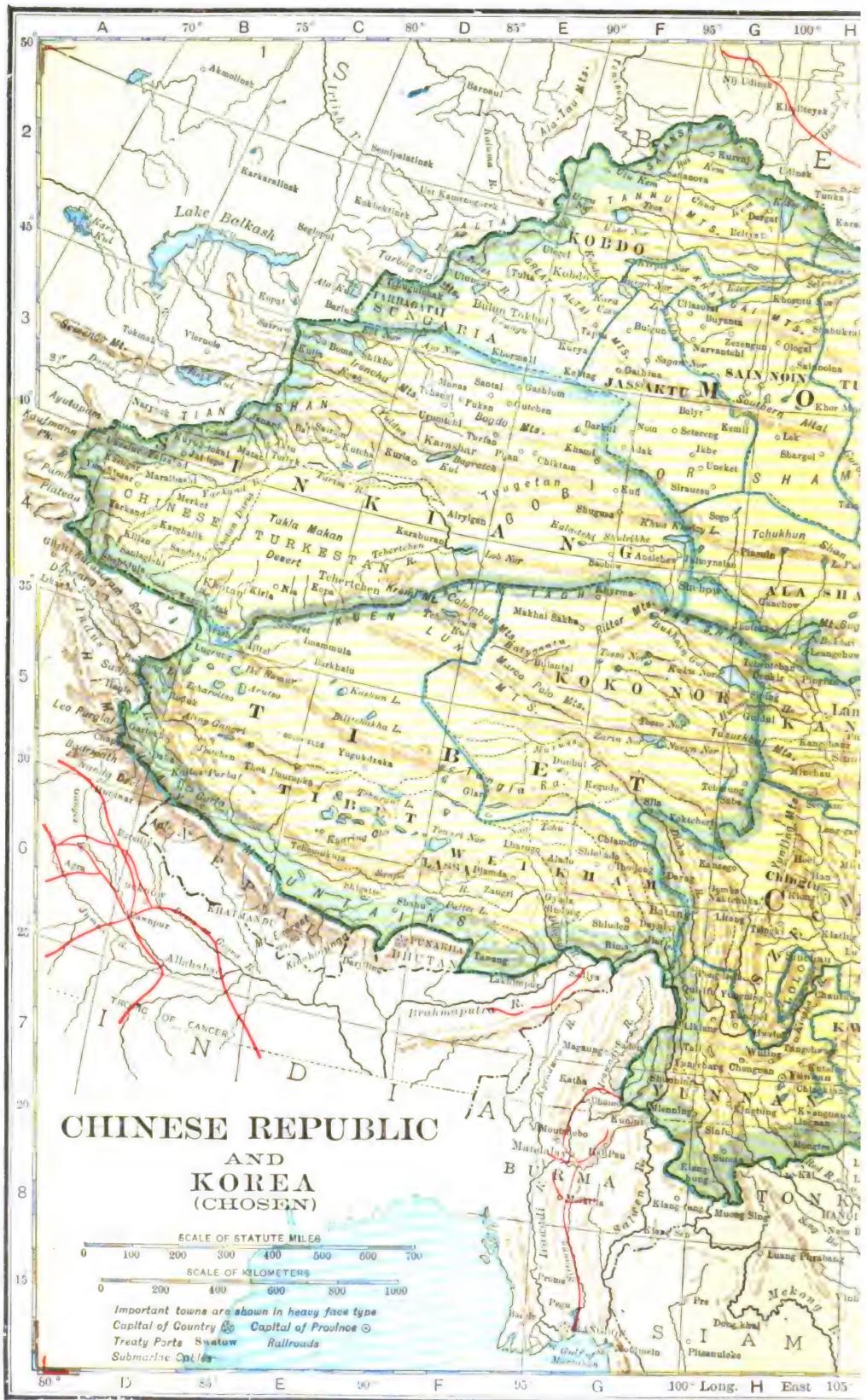
With a total revenue of 174,364,164 Haikwan taels Hangchow continues the steady decline in the amount collected in dues and duties since 1911, when revenue amounted to 553,984,672 Haikwan taels, though this does not reflect any decrease in the volume of trade of the port, which has remained remarkably steady. The total shipping entered and cleared in 1920 amounted to 4628 craft of all kinds, totaling 228,027 tons. The value of foreign imports arriving direct at Hangchow was 78,173 Haikwan taels, which was less than half of the 1919 total, while the amount imported from Chinese ports rose by 1,080,000 Haikwan taels to 5,590,000 Haikwan taels. Chinese exports amounted to about 10,252,000 Haikwan taels.

The record year of 1919 for Kiukiang was surpassed by a trade of a net value of 48,416,293 Haikwan taels in 1920. The rise in sterling exchange placed Japanese lower priced goods in a better position than those from Great Britain and America, and the boycott, which at the beginning of the year was slackening, died out entirely. The total Maritime Customs collection for 1920 was 670,792 Haikwan taels. The value of foreign goods imported showed an increase of 3,592,536 Haikwan taels or a ratio of over 35 per cent. The total value of exports showed a slight decrease as compared with 1919, the 1920 figures being 24,205,785 Haikwan taels.

SHIPPING. During 1919, 209,754 vessels of 95,725,935 tons entered and cleared Chinese ports. Of these 4333 of 2,569,887 tons were American; 36,074 of 36,284,312, British; 471 of 414,161, French; 298 of 53,142, Italian; 27,182 of 27,532,449, Japanese; 2803 of 708,474, Russian; 128,575, of 27,089,762, Chinese. During the year 1920 the vessels entering and clearing from Chinese ports numbered 210,609 of 104,266,695 tons. The following were the percentages of tonnage under the various flags: British, 38.67; Japanese, 27.04; Chinese, 26.52; United States, 4.52; all other countries, 3.25.

RAILWAYS. According to the latest available







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figures there were open for traffic at the beginning of 1921 about 6800 miles in China including 1875 miles in Manchuria and there were at that time about 2000 miles under construction. The following information in respect to railways is taken from the *Statesman's Year Book* of 1921: Principal railways in China, beginning with the north: (1) South Manchurian Railway, from Changchun to Dairen, 814 miles; (2) Peking-Mukden line, from Mukden to Peking, 632 miles; (3) Peking-Suiyuan Railway, from Peking to Kalgan, Tatung Fu, and Fengchen; (4) Peking-Hankow Railway, Peking to Hankow, 755 miles; (5) Bien-Loh Railway (in Honan province), from Kai-fung Fu to Loh Yang, 125 miles; (6) Shanghai-Nanking Railway, from Shanghai to Nanking, 200 miles; (7) Tientsin-Pukow Railway, from Tientsin to Pukow, on the Yangtse river, opposite Nanking, 627 miles; (8) Shanghai-Hangchow-Ningpo Railway, from Shanghai to Hangchow, 150 miles; (9) Canton-Hankow Railway, from Hankow to Canton, 700 miles; and (10) the Chinese Eastern Railway, also known as the Siberian Railway.

Railway construction work in China in 1921 was more active than at any time since it was broken off by the war in 1916. A notable accomplishment was the completion of the section from Fengchen to Suiyuan, on the Mongolian border, and the beginning of a further extension to Paotow, on the Yellow river. Another important undertaking begun was a branch line of 80 miles extending from Chinchow on the Peking-Mukden to Chaoyang, a coal mining region.

The Japanese were engaged in extending the Seupinkai-Chenchiatun to Taonan. The Ministry of Communications constructed the earthwork of a line from Shihchiachuang, the junction of the Cheng-tai and the Peking-Hankow railways, to Tsangchow on the Tientsin-Pukow Railway, together with the earthwork and culverts of a branch to the Shantung Railway, extending from Weihsien to Cheefoo via Lungkow using famine sufferers for laborers, and charging their effort to various railway revenues.

One important development of the year was the announcement that the Chinese Standardization Commission, appointed to fix permanent standards for rolling stock and materials throughout the whole government railway system of China, had agreed on the standards for rails and fastenings; sleepers or ties, both ordinary and for bridges; cuts and fills; formation and ballasting; tunnels; clearance and minimum structure gauges. Specifications for bridge steel were also accepted. In rolling stock, standard designs were adopted for heavy locomotives—the Pacific type for passenger and the "Mikado" for freight service—with certain alterations to conform to the views of the locomotive superintendents of the various Chinese government railways. For freight and passenger cars agreement was also reached on standard designs for wheels, axles, trucks, bodies, frames, couplers, and so forth. Standards were also fixed for freight cars of a capacity of 40-ton, 30-ton and 20-ton and of both steel and wood construction.

DEFENSE. According to the conscription law of Jan. 1, 1916, there were to be about 250,000 men but the number did not exceed 180,000. In the disorganization of the central power after the death of Yuan Shih-kai, the military governors of the province made themselves practically independent and recruited troops on their own account. This

greatly increased the military forces which were estimated in 1920 at a total of 1,500,000. There was agitation against this condition and a certain reduction of these forces was reported in 1920. The largest vessel at the beginning of 1921 was a protected cruiser of about 4300 tons. The navy of China is inconsiderable and the other vessels are of comparatively small tonnage.

GOVERNMENT. The executive authority under the republican constitution is vested in a president and vice-president and the legislative authority in two houses, namely, the Senate of 264 members and the House of Representatives with 596. President, at the beginning of 1921, Hsu-Shih-chang. Ministry after August 11, 1920:

Premier, Chin Yun Peng; Interior, Chang Chih-t'an; Foreign Affairs, W. W. Yen; War, Chin Yun-P'eng; Navy, Sa Chen Ping; Finance, Chow Tse-ch'i; Education, Fan Yuan-lien; Justice, Tung K'ang; Communications, Yeh Kung-cho; Agriculture and Commerce, Wang Nai-ping.

The southern province refused to recognize the Peking government and was constituted under a separate administration with Dr. Sun Yat-sen as president, whose headquarters were at Canton. See following paragraphs on *History*.

HISTORY

FINANCIAL RELATIONS. The new consortium loan described in the preceding *YEAR BOOK* was not acceptable to the Peking government in spite of its financial embarrassment. This was manifest when the details were made known to the government on February 1. Among the people it was believed that the acceptance of the consortium would be followed by the interference of foreign Powers in China's affairs, and among the Nationalists it was believed that acceptance of its terms would involve a foreign supervision of Chinese expenditures, incompatible with the dignity of China. Among the bankers there was opposition from the point of view of their own interests, and in South China the party of Dr. Sun Yat-sen strongly opposed foreign financial interference and said that funds supplied by foreign Powers to aid the Peking government would be used to inflict further oppression on the people.

TREATY WITH GERMANY. On May 21 the government signed a treaty of amity and commerce with Germany whereby the latter gave up its extra-territorial jurisdiction in China and certain principles of equality and reciprocity were agreed upon by each. The following points may be mentioned: Chinese property in Germany was to be returned upon the ratification of the agreement; the German government agreed to assist Chinese students in Germany; the Chinese government promised full protection to German residents and the trial of cases involving Germans in modern courts and according to modern codes.

THE CANTON REPUBLIC. The new republic in the south continued hostile to the Peking authorities throughout the year as was illustrated in a manifesto issued by the president, Dr. Sun Yat-sen, September 5, in which he accused the Peking government of subservience to Japanese influence and blamed it for consenting to the twenty-one demands of Japan, saying that this concession and the secret agreements between the two governments would prevent any settle-

ment of the Far Eastern questions. On October 12 the Canton government declared war on the militarists of Peking, and it was reported that the president, himself, was in command of the offensive which would strike at Peking through the province of Kwangsi.

CHINA AND JAPAN. Friction with Japan continued early in the year, the Chinese government endeavoring to make Japan withdraw the troops that had been sent to Huchun for the alleged purpose of protecting Japanese interests, and in the latter part of March the Japanese government agreed that the troops should be withdrawn on April 1. No arrangement was reached in respect to Shantung and the Chinese government refused to treat with Japan on the subject. Among the people the boycott of Japanese goods continued. There was fighting in February in Outer Mongolia, where in February a force made up of Mongolians, Japanese, and White Russians, under General Ungern, an associate of General Semenov drove out the Chinese garrison at the Mongolian capital, Urga, and on February 25, Ungern was crowned king of the independent state of Mongolia. For account of the issues between China and Japan, see **WAR OF THE NATIONS**.

GOVERNMENT CRISIS. On December 19 it was learned at Washington that the entire Chinese cabinet had resigned and that important changes were likely to result. The military governor of Manchuria, General Chang Tso-lin, returning to Peking set out to enforce a programme involving, first, the resignation of the present President and the selection of a new one. This was to be followed by the choice of a Prime Minister, who possessed the confidence of the native and foreign elements, and by the developments of a plan for uniting the country. The programme involved the acceptance of the consortium with Chinese participation. The Manchurian general who had been in command of the three Manchurian provinces with headquarters at Mukden, arrived in Peking, December 13. For some time past it had been believed that the present government had merely the form of authority without any real power. The success of the new programme was dependent on the support of certain of the great military authorities who were in actual control of all northern China. A new cabinet was announced comprising representatives from the different groups. The Prime Minister was Liang Saish-yi who was one of the best known financiers of the country and was believed to have the controlling influence over the Chinese banking policy. His new cabinet assumed office, December 25. Its other members were as follows: Foreign Affairs, W. W. Yen; Finance, Chang Hu Vice; War, Pao Kwoi-Ching; Navy, Li Ting-Hsing; Communications, Leh Kung-hui; Commerce, Chi Yao-shan; Interior, Kao Ling-wei; Education, Huang Yen-pei. Of these, the ministers of foreign affairs and the navy had been members of the former cabinet. The Prime Minister was regarded as one of the wealthiest and most influential financiers in China, and his appointment was approved as likely to improve the chaotic financial situation. He had already served in the government as chief of the department of communications in 1907. He had also been director of railways, and acting director of the Chinese Imperial Posts.

During the late war he was for a time director-general of the customs administration, and director-general of the bureau of taxes.

CHOSEN. See **KOREA**.

CHRISTIAN ENDEAVOR, UNITED SOCIETY OF. Founded in 1881. This is an interdenominational society of young people whose purpose is the training of converts for church membership and church work. Its activities are divided into four classes: Junior, Intermediate, Senior societies, and Alumni Councils. In 1921 there were 67,099 societies, of which 9238 were organized in the past two years. Of the total, 40,408 are in the United States, 4090 in Canada, 22,507 in foreign countries, 65 are so-called floating societies, and 29 army societies. Statistics show the following enrollment in the various groups: Comrades of the Quiet Hour, who devote a definite time to prayer and meditation each day, numbered 199,828; the Tenth Legion, whose members give one tenth of their incomes to religious work, had a membership of 59,481; Life Work Recruits, or young people who are ready to give themselves to full-time Christian service, 6080; and Christian Endeavor Experts, who have successfully passed an examination in Christian Endeavor principles and methods, 31,641.

The Sixth World's and Twenty-eighth International Convention of the society was held in New York City, July 6 to 11. Sixteen thousand delegates were present from all parts of the United States as well as from Burma, Canada, China, South Africa, Czecho-Slovakia, Poland, Armenia, Australia, and Finland. The president, Francis E. Clark, in his annual message, outlined the Christian Endeavor Foursquare Campaign which was to be the programme for the society in 1921-22. It aimed first toward increased membership and graded endeavor work among the Junior, Intermediate, and Senior societies. The second aim was increased service to the pastor and the church. The third related to the four spheres of action and urged the principle of religion in the church, the home, the community, and the world. The fourth referred to the methods followed by Christian Endeavor meetings, committees, unions, and personal stewardship of time, personality and thought. During the convention addresses were delivered by prominent leaders of the movement and several denominational rallies held. In a citizenship demonstration, the delegates marched in New York in a long, impressive parade.

Steady progress was reported to have been made by the society in foreign lands. Christian Endeavor in England, like other countries, suffered greatly during the war; since then, however, there has been a marked revival of interest and activity. Progress in Germany has been gratifying; societies there now number 1020, with about 32,000 members. The war and Bolshevism had caused serious setbacks to the work in Hungary; in 1921 the work was going forward rapidly. Under the direction of field secretaries from Finland nineteen societies were established in Esthonia. In Finland also the work has been flourishing. A firm foothold has been gained in Africa. There are more than 2000 societies in India and more than 1200 in China. In 110 societies in Brazil there are 3673 members. Twenty employed field secretaries conduct the work in the United States through the State unions.

The treasurer's report showed 1921 to have been the best financially since the founding of the society. Receipts from all sources totaled \$66,119.19. The increase is attributed chiefly to the financial crusade of 1920 and the increase of business in the publishing department. The assets of the corporation amount to \$455,383.45 and liabilities, \$222,840.41.

The Alumni Fellowship in 1921 numbered 234. *The Christian Endeavor World* is the official organ. The officers in 1921 were: Rev. Francis E. Clark, LL.D., president; Daniel A. Poling, LL.D., associate vice-president; Edward P. Gates, general secretary; Alvin J. Shartle, treasurer and publication manager; Rev. Robert P. Anderson, editorial secretary; and Ira Landrith, LL.D., extension secretary. Headquarters are maintained at Mt. Vernon and Joy Streets, Boston, Mass.

CHRISTIAN SCIENCE. The most important event in 1921 for this denomination was the decision of the Supreme Judicial Court of Massachusetts, handed down on November 23, which established the legal validity of the unique organization given by Mrs. Eddy to the Mother Church of Christian Science, The First Church of Christ, Scientist, in Boston, and restored to the Church its control of the Christian Science Publishing Society, the control of which had been contested by its trustees. The controversy was one of long standing and centred around the question of whether the Christian Science Board of Directors, which has supervision over the affairs of the Church, or the Board of Trustees of the Publishing Society should have final say as to the policies of the publications. In 1918 the trustees began to insist on conducting the Publishing Society as an independent institution separate from the Church. In 1919 they began a suit for the purpose of maintaining that position. Previously the Publishing Society had been regarded as an auxiliary to the Church and subject to the control of its executive board. Such a controversy was of peculiar importance to the denomination by reason of the extent to which it relies on the writings of Mrs. Eddy and on periodical publications for supplying the teachings of Christian Science to its adherents and other people interested. On final appeal the court handed down a decision favorable in all respects to the Church. The decision had its immediate reaction in the field. There was a reorganization of the Publishing Society; *The Christian Science Monitor*, the international daily newspaper issued by the Christian Scientists, became an evening instead of a morning newspaper and reported a large falling off in its circulation. The old Board of Trustees of the Christian Science Publishing Society resigned and a new board was appointed as follows: Fred M. Lamson, James E. Patton, and William P. McKenzie, all of Boston and vicinity.

The denomination holds an annual meeting, usually in Boston in June. Progress is reported to have been made in the movement in Stockholm, Geneva, Amsterdam, and Copenhagen, and the growth of the denomination has been gratifying in Australia, England, Holland, Sweden, Norway, and Italy. Since the removal of the ban by the German government, Christian Science under the new régime has become well established in Germany. A Board of Lectureship arranges the delivery of lectures on the denomination throughout the year: a great number of these lectures were

delivered in 1921; the attendance is reported to have been unusually large.

In addition to publishing the *Christian Science Monitor*, the Publishing Society in Boston, issues the *Christian Science Sentinel*, *Christian Science Journal*, *Christian Science Quarterly*, and many other pamphlets on various phases of Christian Science.

CHRISTIANS. This denomination holds a convention every four years; the last was in 1919. Statistics for 1921 showed 98,075 communicants, 1094 churches and 987 ministers. Figures for the Sunday Schools and pupils in 1921 were not available; in 1919, however, there were 963 Sunday Schools with 76,055 pupils. The headquarters of the denomination are at the Christian Publishing Association, Dayton, Ohio. The church is now divided into five territorial conventions: New England, Southern, Metropolitan, Midwestern, and Western Conventions. Each State has its State association and the territory within each State has its several district conferences. There were no unusual or spectacular accomplishments during 1921, yet it was marked by a quiet, sturdy growth, which has added to its strength at many points.

By a system of institutes throughout the country in connection with the Forward Movement of the denomination the life of the church has been greatly stimulated and brought into a closer unity the various sections. Toward the goal of \$1,000,000, \$800,000 have already been pledged, of which \$80,000 has been turned into the channels of the church during the year. The work of the Home Mission Department was gratifying; several centres became self-supporting and special assistance by loans for parsonage erection were given to important points. Its programme was two fold: The Americanization work in New England and the Logging-Camp Evangelism of the Pacific coast. The year in Foreign Missions witnessed the completion of plans and funds and the purchasing of lots for buildings of the Night School and Mission Home in Tokyo, Japan. Sites were also purchased for erection of church edifices at several other points. New fields were opened and statistics of the Japan work showed creditable increases for the year. An enlarged programme covering a 15-year period was inaugurated for the Porto Rican work. Enrollments in the colleges of the church were larger than ever before, also men in pursuit of seminary and university education. There were 241 enrolled in the Life Recruit Volunteers of the church in 1921. The net increase of membership in the year amounted to 9.91 per cent. There was increased interest in Sunday School work also; the membership is now about 100,000 pupils. The volume of tract literature issued by the church exceeded all previous years in quantity and quality. Summer schools of Religious Education were held at Craigville, Mass.; Virginia Beach, Va.; Defiance, Ohio, Winona Lake, Ind.; Meron, Ill.; and Albany, Mo. The year marked the dedication of a Christian Temple at Winona Lake, Ind., which was to be a rallying point for the Midwestern constituency of the denomination. During the year four general workers were added to the staff of field representatives: One for the Forward Movement; one for the Sunday School Department; one for the Home Mission Board; and

one for Religious Education and Young People's work in the South. Church building had begun to revive and plans were under way at several points for the erection of new church buildings. Notwithstanding a general financial depression the Convention Secretary's office received a larger number of remittances than in the preceding year, and receipts increased 46 per cent over 1920. The general receipts for the Home Mission Department were also larger than last year.

The official organ of the denomination is the *Herald of Gospel Liberty*. The Department of Missions issues the *Christian Missionary*.

CHRISTMAS ISLAND. An island in the Indian ocean annexed to the settlement of Singapore in 1900, lying two hundred miles to the southwest of Java; area, about 43 square miles; population in 1918, 2281. It is known for its extensive deposits of phosphate of lime, in the working of which most of the inhabitants are engaged, and which constitutes almost the sole source of the island's wealth. The exports of phosphate of lime in 1919 were 68,621 tons. The tonnage of ships entered and cleared in that year was 81,197.

CHURCHES OF CHRIST IN AMERICA, FEDERAL COUNCIL OF. See FEDERAL COUNCIL OF CHURCHES OF CHRIST IN AMERICA.

CHURCHILL, LADY RANDOLPH. Widow of Lord Randolph Churchill, died suddenly as the result of a fall in London, June 29. She was an American by birth, being the daughter of Leonard Jerome of New York, born in 1854. Many years of her girlhood were passed abroad and she was in Paris on the approach of the siege of 1870 but escaped in the last train. She served with her husband, Lord Randolph Churchill, whom she married in 1874, in his many political and social interests, but was especially known as a social leader. She aided Lord Randolph by her activities in the Primrose League and she exerted a strong influence on her son, Winston Churchill. During the Boer War she raised money in the United States for the equipment of the *Maine* as a hospital ship and was the head of the executive that directed its operations. Her literary interests were extensive and she founded, owned, and edited the *Anglo Saxon Review*. She wrote a volume of *Reminiscences* (1908) and of essays, *Small Talks on Great Subjects* (1916), and she tried her hand at the drama. Five years after the death of Lord Randolph Churchill she married Mr. George Cornwallis West from whom she was divorced in 1913. In 1918 she married Mr. Montague Porch. By Lord Randolph Churchill she had two sons, Mr. Winston Leonard Spencer Churchill and Mr. John Spencer Churchill.

CHURCH OF ENGLAND. See ENGLAND, CHURCH OF.

CHURCH OF GOD. See ADVENTISTS.

CHURCH OF THE NEW JERUSALEM. See NEW JERUSALEM, CHURCH OF.

CINCINNATI, UNIVERSITY OF. A co-educational and municipal institution situated in Cincinnati; founded in 1871. In the autumn regular session there were enrolled 3956 students of whom 1832 were in the Liberal Arts College; 971 in the Engineering College; 359 in Teacher's College; 228 in the Medical College; and 145 in the Graduate School. In the summer session of 1921 the enrollment was 934 students. The faculty numbered 383. Besides the departments

above mentioned there are an evening Commerce College, a College of Law, and a nursing and health department. The endowment was given at \$4,120,352 and the income (1920) at \$1,300,590. The library contained 96,607 volumes. In the course of the year a department of leather research was added. Among the gifts received were included a gift to create a professorship in surgical anatomy and a gift to establish a scholarship. President, Frederick Charles Hicks.

CINCINNATI SYMPHONY ORCHESTRA. See MUSIC, *Novelties*.

CITY GOVERNMENT. See MUNICIPAL GOVERNMENT.

CITY MANAGER PLAN. See MUNICIPAL GOVERNMENT.

CITY PLANNING. Both interest and achievement continued active in this field as is witnessed by additional state legislation authorizing city planning and zoning, the creation of additional city plan commissions and of commissions whose powers are confined to zoning alone; progress in formulating new city plans and in execution of those already adopted; publicity and educational work directed both to the general public and to specialists; and most notably of all in the large number of zoning plans and ordinances adopted or got under way. In England unemployment relief work was coupled with improvement in the city plan with special reference to bettering major street plans by opening up dead ends and widening streets in order to afford both radial and circumferential or ring thoroughfares. Joint undertakings that were inter-municipal or interstate in scope were initiated or carried forward. Notable among these were popular votes creating Metropolitan or joint park districts, a continuation of studies of the Port of New York Authority under a treaty entered into by the States of New York and New Jersey; the beginning of the construction of a vehicular tunnel between New York City and Jersey City by commissions created by each of the two States concerned under the same general scheme of interstate cooperation as has been followed for years by the Interstate Palisades Park Commission of the same two States; and the bringing to the contract stage of a part of the construction of the Philadelphia-Camden bridge over the Delaware river—another example of interstate cooperation.

Using as a basis a bulletin entitled "Municipal Accomplishment in City Planning," edited by Miss Theodora Kimball, librarian of the Harvard School of Landscape Architecture, Jacob L. Crane, Jr., summarized various phases of city planning activity in *Engineering News Record*, Sept. 29, 1921. It thus appears that the 15 largest cities in the United States and 57 out of the 100 largest had done something in the city planning line up to the close of 1920. Of 113 cities where some city planning had been done, 62 had municipal plan commissions or something of that nature; but in many instances the work had been carried on by citizens' committees or civic organizations. Massachusetts, Pennsylvania, and California lead in the number of city plan commissions established and in the amount of planning work actually undertaken; but it should be noted that Massachusetts has a state law compelling all cities and all "towns" of considerable size to establish plan commissions, while Pennsylvania some years ago enacted legislation that favored city planning.

Massachusetts now has a Division of Housing and Town Planning in the State Department of Public Welfare and Pennsylvania has a Division of City Planning and Municipal Engineering in its Department of Internal Affairs. These appear to be the only two American States that have themselves taken up city planning work, although many have now authorized their municipalities to do so. In Canada nearly, if not quite, all the provinces have established bureaus or divisions of city planning and the Dominion Government has also carried on work of the sort through its Conservation Commission. Mr. Crane's summary of Miss Kimball's data shows further that of the cities in which some city planning work has been done, a landscape architect has been employed either alone or in conjunction with some other expert in 45 instances and an engineer in 32 cases and an architect in 18, while in 22 instances the title given has been "civic expert," which generally means a specialist in city planning studies. In 20 of the instances where engineers were employed, these were taken from the city's own department. Supplementing Miss Kimball's data it may be stated that it is becoming more and more common for cities to train members of their engineering staffs to city planning work, or to engage an engineering specialist for that purpose where one is not already available within some city department. A later survey of city planning in the United States, also by Miss Kimball, appears in the *National Municipal Review* for January, 1922, where there was so much to chronicle for 1920-21 that the author was unable to do more than to give references to various published reports. Miss Kimball states that more than 30 American commonwealths now have laws relating to some phase of city planning; and that within the last year or two laws on city planning and zoning were enacted in Rhode Island, Connecticut, Tennessee, Ohio, Indiana, Michigan, Illinois, Minnesota, Kansas, Missouri, and Texas.

COMPOSITION OF CITY PLANNING AND ZONING COMMISSIONS. In the New Municipal Programme of the National Municipal League it was recommended that city planning commissions should be composed of city officials and citizens, the former being in the majority. The City Planning Commission at Indianapolis, created in 1921, consists of nine members, of which five are citizens and four are city officials, the latter being the president of the Board of Park Commissioners and Public Works, a member of the City Council and the City Engineer. The new City Planning Commission of Columbus, Ohio, has the City Engineer and the Director of Public Service among its members and also as citizen members a professor of municipal engineering at the University of Ohio, the president of the Columbus Real Estate Board, an architect and a newspaper publisher. At Baltimore the new Zoning Commission consists of the chief engineer of the city, the chief engineer of the Baltimore Topographical Survey Commission, the city building inspector and the president of the Roland Park Company and three other citizens. The Roland Park Company has done notable planning work in connection with an extensive real estate development. The Topographical Survey Commission has been in existence for many years and its work has been largely of the city planning order. When the mayor appointed the Baltimore Zoning Commission he

announced that he expected later on to ask the Engineers Club of Baltimore, the Baltimore chapter of the American Institute of Architects and other organizations particularly interested in zoning and city planning to serve as members of an Advisory Zoning Commission. The Chicago Zoning Commission, appointed July 28 under an ordinance passed a year or so earlier, has 22 members. It is headed by the City Commissioner of Buildings. Other city officials on the commission are the Chairman of the Board of Local Improvements, the Commissioner of Health, the Chairman of the Chicago City Plan Commission, the corporation counsel and eight aldermen. Among the citizen members of the commission are two engineers and one architect. A zoning specialist was chosen before the end of the year and several field parties set to work. As noted elsewhere in this article and in earlier ones in the *INTERNATIONAL YEAR BOOK*, city planning has been taken up nationally in various countries of the world. Not until 1921 was it recognized in the United States—except in connection with the government housing operations during the war. In 1921 the United States Department of Commerce established a Division of Building and Housing with John M. Dries as chief, and created a zoning commission to act in conjunction with Mr. Dries as follows: Louis A. Moses, National Association of Real Estate Boards; J. Horace MacFarland, American Civic Association; Nelson P. Lewis, National City Planning Conference of the National Municipal League, and formerly chief engineer of the Board of Estimates in New York City; Lawrence Veiller, National Housing Association; and Morris Knowles, consulting engineer, Pittsburg, formerly connected with Federal housing work; Edward M. Bassett, chairman of the late zoning commission of New York City and now counsel of the New York Zoning Committee, a private organization to aid in the enforcement of the zoning ordinance; Frederick Law Olmstead, president, Society of Landscape Architects; and John Ihlder, manager, Civic Development Department of the Chamber of Commerce of the United States. This committee had already held two meetings by the end of November and was engaged in the preparation of a digest of state and city legislation on zoning as a basis for suggestions on the subject to be sent out by Secretary Hoover.

CITIES THAT HAVE ADOPTED OR ARE WORKING ON ZONING: A list of 44 cities that have already passed zoning ordinances and 75 more that were working on zoning, compiled by Charles B. Ball, chief sanitary inspector, Department of Health, Chicago, appeared in the *National Real Estate Journal* of Nov. 7, 1921, and is reprinted herewith. Other cities have started work since that date and very likely some are quite unintentionally omitted from the list. Of the 44 adoptions, Neenah, Wis., is credited with having been first, in 1915; New York City second, July 25, 1916, followed in October of the same year by Racine, Wis. There were only two adoptions in 1916, one in 1917, three in 1918, seven in 1919, while in 1920 the number rose to fifteen and for the first ten months of 1921 there were already fourteen adoptions. The date of adoption for one city is not given, but it was probably 1921. In point of influence, both because of the ever-growing character of the study and the size and importance

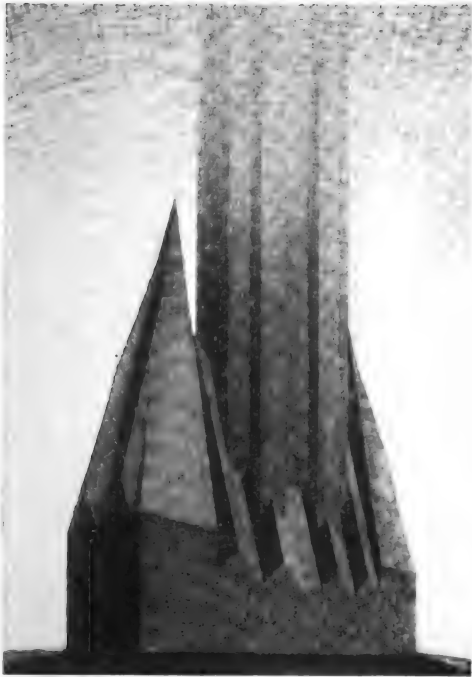
of the city, New York City has led in zoning. By States California and New Jersey lead in number of cities that have adopted zoning ordinances, each having twelve cities, and are followed by New York State with six adoptions. By zoning projects pending in 1921, Massachusetts, New Jersey, and Ohio lead with 15, 11, and 7 cities, respectively. By total action (ordinances adopted or pending in 1921) New Jersey leads with 23 cities and is followed by Massachusetts with 16 and California with 14. Beside the cities in the list of pending projects it is known that Worcester, Mass., took up zoning studies late in 1921.

WHAT CITY ZONING IS. Zoning is that part of city planning that prescribes by city ordinance supplemented by maps or plans the uses to which land and buildings may be put in various parts of a city, the height to which buildings may be carried and the percentage of the area of the lot which may be built upon. Practice shows that districting would be a better term than zoning and sometimes the terms use, height, and area districts are employed. There is a considerable tendency for some of the districts to have a geographical relation to each other that might be properly put under the term "zone" since the business section, for instance, is likely to be at the centre of the city and the residence district further out along radial lines, and there may be the same general relationship between the industrial and the residence districts. In large cities there may be main and minor business and industrial districts, each with its outlying residence districts. Resident districts are generally subdivided, at least to the extent of single or single and two family and apartment or tenement house districts. Under "use" manufacturing is generally excluded from business districts and it is common to divide the industrial or manufacturing districts into light and heavy, or in accordance with the degree of noise and nuisance that may be created by the industries permitted. In the early days of zoning there were separate maps for at least three main classes of use, height, and area districts, but later, and particularly in the last year or two, it has become common to make one map serve to show all three classes and even the sub-classes of districts by a skillful use of different symbols or shadings, combined where necessary with textual definitions. The use of a single map is a great convenience, although when the city is large in area or the district classification is complex several maps on a larger scale may be necessary. The use of the term "police power" as applied to zoning means the surrender of individual rights for the benefit of the general health and welfare of the community, without compensation, differing in this latter respect from the exercise of eminent domain or condemnation, in which compensation is paid to the owner for property taken. The exercise of the police or community welfare power rather than the right of eminent domain has the advantage of great flexibility and is far more practicable in various ways. Taking of property by condemnation or eminent domain has a very strong tendency to crystallization or fixedness of use since by this means the use of property in a given district could not be changed to meet changing conditions without all the delay incident to condemnation proceedings and compensation to the property owners every time the use in a given district was changed. The same would also apply to changes in height or area

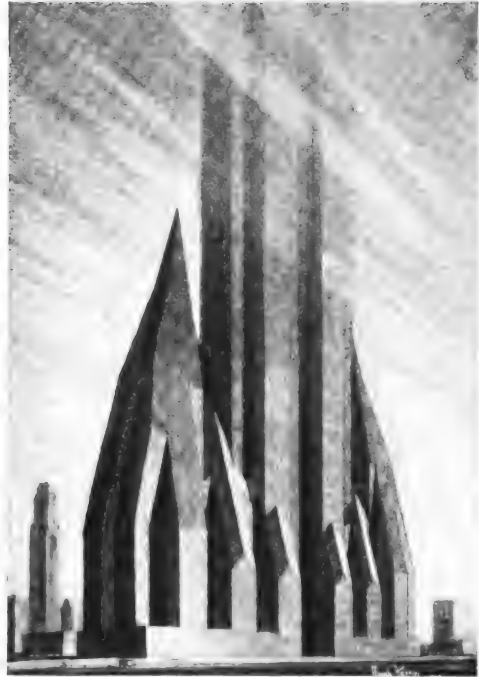
districts. There is, however, a Minnesota statute that provides for a limited application of zoning by means of condemnation procedure. Zoning ordinances often provide for boards of appeal to settle disputed points and provision is usually made for changes in zoning or districting by the amendment of the ordinance, on petition of interested parties and after public notice and hearings. In December, 1921, a session of the New York City Section of the American Society of Civil Engineers was given up to addresses and discussions on the benefits that have followed the adoption of the New York City zoning ordinance. The meeting will be reported in the 1922 *Proceedings of the Society*.

SOME RECENT ZONING ORDINANCE PROVISIONS.

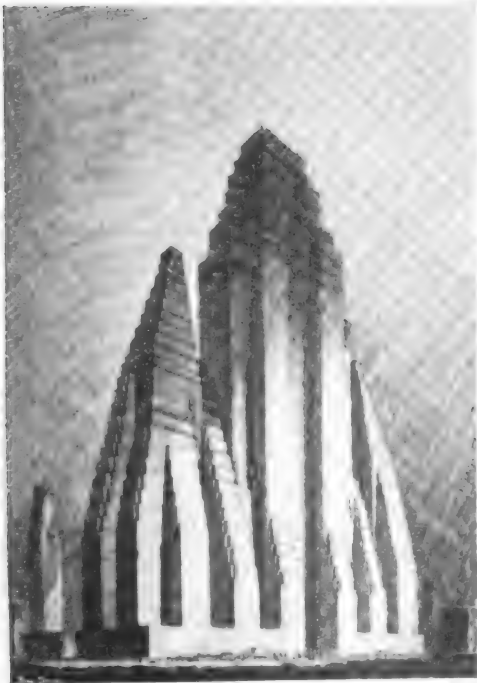
The zoning ordinance for Cleveland Heights, Ohio, described in the ordinance as "a residential suburb of the city of Cleveland having no steam railroads within its corporate limits and no industrial plants therein," certified to the City Council by the City Planning and Zoning Commission June 6, 1921, and adopted by the City Council August 2, 1921, provides for five use, three height, and four area districts, as follows: Single family, two family, apartment house, local retail and commercial use district; two and a half stories, four stories, and 100-foot height districts; and area districts having respectively an allowance of 5000 sq. ft., 2500, 1250, and 625 sq. ft. per family—this being a variation from the more usual provision establishing the percentage of the area of the lot that may be built upon in these area districts. The abbreviations U, H, and A are used on the map for use, height, and area districts respectively with sub-numerals 1, 2, etc., for the various subdivisions in each class. Unless otherwise specified, the A₁ area districts and H₁ height districts are in U₁ use districts, and so on through the several subdivisions. The detail into which zoning ordinances sometimes go is illustrated by the fact that for even so small a suburban residence district as Cleveland Heights the ordinance fills a pamphlet of 16 pages and is supplemented by a folding map. For a second illustration of a zoning ordinance for a suburban town, adopted in 1921, Montclair, N. J., may be taken. Here the provisions of the ordinance centre on the definitions and descriptions placed upon use districts, and such height and area restrictions as are made are laid down under the provisions of each use district instead of under separate provisions for these two classes of districts. Eight use zones are established. Of these six are for residences, one for business, and one is an industrial zone. The six residence zones are classified as (1) villa, (2) suburban, (3) two-family detached houses, (4) two-family semi-detached, (5) apartment house No. 1, (6) apartment house No. 2. In all six residence zones "no building shall be used and no building shall be erected which is arranged, intended or designed to be used," except the following: dwellings or tenements (in these the occupants may have offices for the practice of medicine or surgery, arts and music); boarding houses; hotels; churches; schools, libraries or public museums; hospitals and sanitariums; private clubs; philanthropic or eleemosynary uses or institutions, other than correctional; railroad passenger stations; farming, truck gardening, nurseries, or greenhouses, and certain restricted accessory uses to the above, including garage or group of garages for three motor vehicles or less.



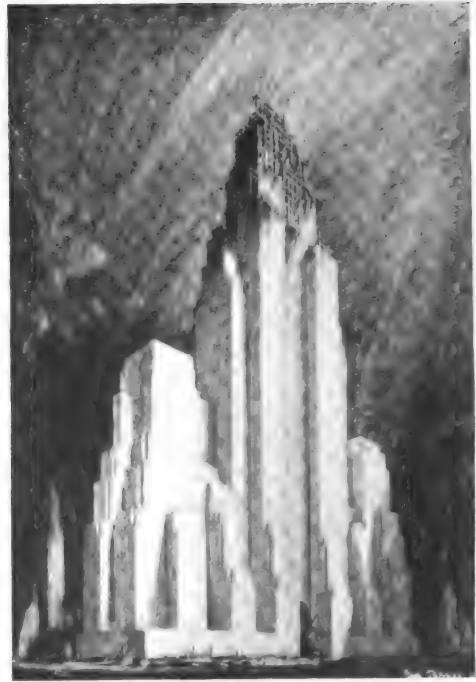
The envelope within which the building must remain



The envelope after cutting out light courts



The mass after substituting set-backs, with vertical walls, for the sloping planes



The mass after conforming the set-backs to the steel grillage

Drawings by Hugh Ferriss based on diagrams of Helmle & Corbett, Architects

"THE NEW YORK ZONING LAW"
THE EVOLUTION OF AN 'ENVELOPE' ON A CITY BLOCK IN A TWO-TIMES DISTRICT

Besides the restrictions of use common to all six residence zones, there are further restrictions designed to govern the number of families housed per acre in each zone, this number ranging from eight in the villa zone and ten in the suburban zone to 105 and 140 in apartment house zones Nos. 1 and 2, respectively. These limitations to the number of houses per acre are also controlled in part by prescriptions as to the height of buildings, the percentage of the areas of the lots built upon, the depth of front and rear yards, the width of side yards, and the dimensions of courts. Thus in the Montclair villa zone no building shall be erected to a height in excess of 35 ft., nor occupy more than 25 per cent of the area of the lot at the curb level, nor have a rear yard less than 25 per cent of the depth of the lot (but need not exceed 25 ft. at this level), or have side yards less than 6 ft. wide on one side and 10 ft. wide on the other. There are also further detailed restrictions, including those for setback from the street. The height area, yard dimensions and associated restrictions decrease in severity with the different classes until for apartment house No. 2 districts the height is held to not in excess of 50 ft., the percentage of the lot built upon must not be over 70 per cent of the area for an interior nor more than 90 per cent for a corner lot; the rear yard must not be less than 15 per cent of the depth of the lot, no front yard whatever shall be required and under certain conditions no side yards. The use regulations controlling business zones in Montclair permit any use that is permitted in any of the residence zones and prohibit practically all trade and industries except those for the manufacture of products sold at retail on the premises to the ultimate consumer, together with newspaper establishments and other peculiarly local industries already in existence in the business zone. In the industrial zone 34 classes of manufacturing and industrial plants are specifically prohibited and in addition "any other trade, industry or use, that is noxious or offensive by reason of the emission of odor, dust, smoke, gas or noise." In neither the business or industrial zone may a building be erected to a height in excess of 60 ft., but there are exceptions as regards spires and similar features.

A zoning ordinance for Paterson, N. J., adopted late in the year, provides for four residence and two business zones, a light and a heavy industrial zone. The proposed Philadelphia zoning ordinance, approved by the Zoning Commission Oct. 13, 1921, but not acted upon by the City Council prior to the end of the year, provides for residential, commercial, industrial, and least restricted use districts; five height districts in which the height of buildings may be 1, 1½, 2, 2½, and 3 times the width of the street in which the building abuts, with maximum heights of 45, 65, 85, 125, and 150 ft., corresponding to each of the height districts named, but with permissible additional heights depending upon the front and the rear setbacks from the building line. There are also five area districts in which 30, 50, 70, 90, and 95 per cent of the area of the lot may be built upon but these limitations are accompanied by a detailed tabulation as to required unincumbered area, yard depth, etc. *The Law of Zoning*, a review of constitutional phases with a list of legal decisions, prepared by Herbert S. Swan, was published as a supplement to the *National Municipal Review* for October, 1921.

CITY PLANNING PROJECTS. An illustrated summary of a comprehensive scheme of municipal improvement proposed by the City Planning Board in St. Paul, Minn., appeared in *Engineering News-Record* for Nov. 3, 1921. The proposed improvements are designed to give better routing of traffic across and around the city so as to relieve congestion in the business districts. To this end sidewalk arcades at some points, various street widening and cutting through new streets to make continuous main thoroughfares are proposed. The project also includes a civic centre, railway grade crossing elimination, bridges at some street intersections and parks and parkways. Some of the elements of the project have already been approved by the city authorities for execution. Early in the year the City Planning Commission of Portland, Ore., issued as its bulletin No. 7 a pamphlet entitled "Major Traffic Street Plan, Boulevard and Park System for Portland, Oregon," prepared by Charles H. Cheney, consultant to the Commission. A system of major traffic streets and boulevards has been adopted by the Commission for its guidance in passing upon new subdivisions, parks, and various street matters referred to it. Under this project various streets would be opened, widened, or extended and new boulevards and parks provided. Late in the year the Citizens' Committee on city planning of Pittsburg submitted a report entitled "Major Street Plan for Pittsburg," calling it "a part of the Pittsburg Plan." At Cincinnati, after four months of preliminary survey made in behalf of the City Planning Commission, the Technical Advisory Corporation submitted a voluminous report outlining some of the city planning needs of Cincinnati and recommending an appropriation of \$105,000 for making exhaustive city planning studies by members of the engineering staff of the city and outside consulting engineers. The investigation would require some three years. This, together with the many details of the report, illustrates the vast amount of study considered necessary to work out a thoroughgoing city plan for a large municipality.

EDUCATIONAL AND PUBLICITY WORK. Among the educational and publicity work for city planning carried on during the year may be mentioned.

MAIN THOROUGHFARE CONSTRUCTION. In line with the widening and extension of streets to provide more spacious main thoroughfares or traffic ways reported in earlier issues of this *YEAR BOOK*, Boston began the widening and extension of Stuart Street late in 1921. This improvement is designed to give a more direct route than now exists between (1) the retail shopping and business districts and the South Terminal Station and (2) the southwestern part of Boston and the cities and towns beyond. Construction work has been authorized for a distance of somewhat less than a mile, extending easterly from Huntington Avenue to Washington Street and providing a means of relieving the traffic on Beacon, Tremont, and Washington streets. About 600 ft. of the improvement will be the opening of a new street through private land. Except for a short stretch of Stuart Street already 80 ft. wide, the new thoroughfare will have a width of 70 ft. Some of the existing street lengths utilized are only 50 ft. wide. The estimated cost of the improvement is \$2,741,000, but most of this is for the acquisition of land and buildings,

the estimated cost of the actual construction work being only \$350,000. It is estimated that benefits to be assessed against and collected from private property will total \$2,360,000, making the total cost to the city less than \$400,000. At Detroit there was a large majority vote at the November election for a street widening and opening project to provide an east and west thoroughfare known as the Dix-High-Waterloo paralleling Jefferson Avenue. This improvement was proposed some time ago by the City Plan Commission and approved by the City Council, but shortly before the November election the Council rescinded its action. The mayor vetoed the rescinding resolution but the Council passed it over his veto. The project was then brought to popular vote by initiative referendum petitions. Other noteworthy popular votes at the November election were those favoring the creation of the Akron metropolitan park district to include all of Summit County, Ohio, except one township. This project originated with the City Planning Commission of Akron. Statutory authority for the creation of this park district, as also for the Cleveland metropolitan park district, formed some two years earlier, is found in the Ohio State Conservancy Act. In New Jersey, Union County, in November, adopted the county park act of 1895 under which the notable Essex County park system has been developed. In England a considerable number of municipalities entered upon arterial road construction to give unemployment relief. Some of these enterprises are described in the July and December, 1921, *Town Planning Review* (Department of Civic Design, School of Architecture, University of Liverpool), including projects at Norwich, Bristol, Dundee, Glasgow, Portsmouth, Bradford, Liverpool, Leeds, Birmingham, and other places. The journal named points out that while road improvement for unemployment relief is not new, such work heretofore has been regarded merely as unemployment relief and "not as opportunities for improving or correcting the plan of a town." It adds that through not working to a well-conceived plan some of the money heretofore spent on unemployment relief in England has been wasted. The *Town Planning Review* for July has also an article entitled "Arterial Roads of Greater London in Course of Construction," these including radial and circumferential and by-pass roads. Most of these London road improvements seem to follow a plan formulated by the London Society, which, for some years past, has been carrying on large scale city planning and related studies for London and vicinity. These studies were summarized under various heads by a large

number of specialists in a handsome volume published late in the year under the title *The Future of London*. The *Town Planning Review* for December also outlines briefly the progress of town planning in British Malaya since legislation enacted in 1917 under a government town planning department and an advisory town planning committee. Noteworthy also in the December *Review* just mentioned is an article describing operations under a town planning act applicable to Salonika after the transfer of that city from British to Greek control. A unique town planning opportunity was afforded Salonika by the almost complete destruction of the city by fire in August, 1917. The remaining buildings were considered to be of such little importance that it was decided to ignore them in making new plans for the city. To facilitate the abandonment of the old street system and the adoption of a new one which made it necessary to ignore the old property lines, a law was passed constituting all the owners of property situated in the burned area of the town a Property Owners Association in which each property owner became a shareholder in the company to the extent of the value of his original individual holdings. A survey and estimate of the value of these individual holdings were made by a commission created for the purpose. The new lots established by the Town Planning Commission were also valued and transfers of these new lots were made to the original holders to satisfy their rights under the valuation of the old lots. Canton, China, acted upon city planning investigations during the year in order to take advantage of an opportunity to remodel the city along modern lines afforded by the recent demolition of the old city wall of Canton (see letter from Sun Fo, mayor of Canton, China, in *The National Municipal Review* for October).

EDUCATIONAL AND PUBLICITY WORK: Among the educational and publicity work for city planning carried on during the year may be mentioned Friday and Saturday evening lectures on city planning continued through a period of six weeks in Sacramento under the auspices of the University of California Extension Division and the California Real Estate Association. Other short courses were given in San Francisco and Los Angeles during the year. Instruction in city planning was given in the public schools in Los Angeles, at the University of California, at the University of Southern California, and universities in other States offered extension lectures on city planning topics. The year's review may be worthily closed by mentioning the publication of two handsome illustrated volumes entitled *Daniel Burnham, Architect, Planner of Cities* (Boston).

THE STATUS OF ZONING LATE IN 1921

From the *National Real Estate Journal*, Nov. 7, 1921

CITIES IN WHICH ZONING IS IN EFFECT

City	Date of Ordinance	Consultant
Alameda, Cal.	1919.	Charles H. Cheney
Berkeley, Cal.	July, 1920.	Charles H. Cheney
Brockton, Mass.	Nov. 29, 1920.	Arthur C. Comey
Caldwell, N. J.	Sept. 19, 1921.	Tech. Adv. Corp.
Cleveland Hts., O.	Aug. 2, 1921.	Robt. H. Whitten
Cliffside Park, N. J.	Sept. 27, 1920.	Herbert S. Swan
Coronado, Cal.	Feb., 1921.	
Cudahy, Wis.	July 16, 1919.	
East Cleveland, O.	1919.	C. M. Osborn
East Orange, N. J.	March 16, 1921.	Tech. Adv. Corp.

<i>City</i>	<i>Date of Ordinance</i>	<i>Consultant</i>
Evanston, Ill.	Jan. 18, 1921.	Harland Bartholomew
Glenoce, Ill.	May 9, 1921.	George W. Maher
Glen Ridge, N. J.		Herbert S. Swan
Gloversville, N. Y.	April 11, 1921.	E. E. Christopher
Los Angeles, Cal.	April 5, 1920.	
Maplewood, N. J.	1921.	Frank B. Williams
Milwaukee, Wis.	Nov. 15, 1920.	Arthur C. Comey
Montclair, N. J.	May, 1921.	Herbert S. Swan
Neenah, Wis.	May 5, 1915.	
Newark, N. J.	Jan. 3, 1920.	Herbert S. Swan
New York, N. Y.	July 25, 1916.	
Niagara Falls, N. Y.	1920.	John Nolen
Oakland, Cal.	April, 1919.	
Oak Park, Ill.	Oct. 10, 1921.	
Omaha, Neb.	June 29, 1920.	Harland Bartholomew
Palo Alto, Cal.	Aug. 16, 1918.	Charles H. Cheney
Pasadena, Cal.	Oct. 1, 1919.	
Paterson, N. J.	Oct., 1921.	Herbert S. Swan
Pomona, Cal.	Mar., 1917 and Apr., 1920.	
Racine, Wis.	Oct., 1916.	
Rahway, N. J.	Aug. 11, 1920.	
Rochester, N. Y.	Sept. 22, 1919.	E. A. Fisher
Sacramento, Cal.	June 12, 1917.	John Nolen
Santa Barbara, Cal.	May, 1920.	
St. Louis, Mo.	May, 1918.	Harland Bartholomew
South Orange, N. J.	1921.	Tech. Adv. Corp.
So. Pasadena, Cal.	Sept., 1920.	
Tacoma, Wash.	June 4, 1919.	
Turlock, Cal.	1918.	Charles N. Cheney
Washington, D. C.	Aug. 30, 1920.	Harland Bartholomew
Westfield, N. J.	Aug., 1921.	Tech. Adv. Corp.
West Orange, N. J.	Sept. 19, 1921.	Tech. Adv. Corp.
White Plains, N. Y.	June 7, 1920.	Herbert S. Swan
Yonkers, N. Y.	1920.	Herbert S. Swan

CITIES IN WHICH ZONING PREPARATIONS ARE IN PROGRESS

Akron, Ohio.	Studies completed.	John Nolen
Amherst, Mass.	Plans in progress.	
Appleton, Wis.	Plans in progress.	Leonard Smith
Atlanta, Ga.	Plans in progress.	Robert H. Whitten
Attleboro, Mass.	Plans in progress.	
Baltimore, Md.	Plans in progress.	J. C. Grinnalds
Bogota, N. J.	Ordinance prepared.	Herbert S. Swan
Boston, Mass.	Plans in progress.	
Bound Brook, N. J.	Ordinance prepared.	Herbert S. Swan
Bridgeport, Conn.	Studies completed.	John Nolen
Brookline, Mass.	Ordinance prepared.	Arthur C. Comey
Buffalo, N. Y.	Plans in progress.	George H. Norton
Cambridge, Mass.	Ordinance prepared.	Arthur C. Comey
Chicago, Ill.	Com. appointed, July 22, 1921.	Bennett & Parsons
Cincinnati, O.	Plans in progress.	Tech. Adv. Corp.
Cleveland, O.	Ordinance prepared.	Robert H. Whitten
Clinton, Mass.	Plans in progress.	
Cranford, N. J.	Ordinance prepared.	Tech. Adv. Corp.
Dallas, Tex.	Ordinance prepared.	Robert H. Whitten
Detroit, Mich.	Ordinance prepared.	Harland Bartholomew
Elizabeth, N. J.	Ordinance prepared.	Tech. Adv. Corp.
Elkhart, Ind.	Studies completed.	John Nolen
Everett, Mass.	Plans in progress.	
Flint, Mich.	Studies completed.	John Nolen
Framingham, Mass.	Plans in progress.	
Gary, Ind.	Plans in progress.	Bennett & Parsons
Grand Rapids, Mich.	Plans nearly ready.	Harland Bartholomew
Green Bay, Wis.	Studies completed.	John Nolen
Hamilton, O.	Ordinance prepared.	Harland Bartholomew
Holyoke, Mass.	Plans in progress.	
Hoboken, N. J.	Ordinance prepared.	Herbert S. Swan
Hutchinson, Kan.	Ordinance prepared.	Harland Bartholomew
Irvington, N. J.	Ordinance prepared.	Herbert S. Swan
Jackson, Mich.	Plans in progress.	Harland Bartholomew
Janesville, Wis.	Studies completed.	John Nolen
La Crosse, Wis.	Studies completed.	John Nolen
Lakewood, O.	Ordinance prepared.	Robert H. Whitten
Lansing, Mich.	Plans in progress.	Harland Bartholomew
Lincoln, Neb.	Plans in progress.	
Long Beach, Cal.	Ordinance in preparation.	Charles N. Cheney
Madison, Wis.	Plans nearly ready.	Harland Bartholomew
Malden, Mass.	Plans in progress.	
Memphis, Tenn.	Plans nearly ready.	
Minneapolis, Minn.	Ordinance of 1913 invalid.	Harland Bartholomew
Mansfield, O.	Ordinance prepared.	Tech. Adv. Corp.
Mount Vernon, N. Y.	Plans in progress.	Tech. Adv. Corp.
Newton, Mass.	Plans in progress.	John P. Fox, Jr.
Northampton, Mass.	Plans in progress.	
Orange, N. J.	Ordinance prepared.	Tech. Adv. Corp.
Paso Robles, Cal.	Ordinance in preparation.	Charles H. Cheney
Passaic, N. J.	Ordinance prepared.	Tech. Adv. Corp.
Philadelphia, Pa.	Plans and ordinance completed.	C. W. Albright
Phoenix, Ariz.	Plans in progress.	Bennett & Parsons
Pittsburg, Pa.	Ordinance prepared.	Harland Bartholomew
Portland, Ore.	Ordinance failed on ref., 1920.	Charles H. Cheney
River Forest, Ill.	Ordinance prepared.	
Rock Island, Ill.	Plans in progress.	Bennett & Parsons

<i>City</i>	<i>Date of Ordinance</i>	<i>Consultant</i>
Roselle, N. J.	Plans nearly ready	Tech. Adv. Corp.
Roselle Park, N. J.	Plans nearly ready	Tech. Adv. Corp.
Rutherford, N. J.	Plans nearly ready	Tech. Adv. Corp.
St. Paul, Minn.	Plans nearly ready	Bennett & Parsons
Spokane, Wash.	Ordinance prepared	Charles N. Cheney
Springfield, Mass.	Studies just begun	Tech. Adv. Corp.
Stoneham, Mass.	Plans in progress	
Syracuse, N. Y.	Plans in progress	
Toledo, O.	Plans in progress	
Topeka, Kan.	Ordinance being prepared	Harland Bartholomew
Tarrytown, N. Y.	Ordinance prepared	Tech. Adv. Corp.
Troy, N. Y.	Studies just begun	
University City, Mo.	Ordinance being prepared	Harland Bartholomew
West Hoboken, N. J.	Plans in progress	Tech. Adv. Corp.
Wichita, Kan.	Plans nearly ready	Harland Bartholomew
Winnetka, Ill.	Ordinance prepared	
Winnetka, Ill.	Ordinance prepared	Harland Bartholomew

CIVIC FEDERATION, NATIONAL. See NATIONAL CIVIC FEDERATION.

CIVIL SERVICE REFORM LEAGUE, NATIONAL. Founded in 1881, this organization has as its object to establish and promote a system of appointment, promotion, and removal in the civil service throughout the United States with view toward obtaining governmental administrative efficiency. It constitutes a federation of local associations and auxiliaries throughout the country. Two meetings of the League were held in 1921: April 14 at Baltimore, and November 16 at Detroit. The programme for the year as outlined by Richard Henry Dana, its president, in his address at the April meeting included an extension of competitive tests of fitness, the employment of business organizers and efficiency specialists in government departments, and the securing of capable management by professional and scientific experts with permanent tenure and independent of political partisanship. He pointed out the tremendous burden of national and State taxation as result of waste and inefficiency resulting from the spoils system, and maintained the League's programme would stop by extension of competitive tests, the patronage of public places, simplify and perfect the public service, and secure permanent expert management. Henry Lane Wilson delivered an address on "Our Foreign Policy and Administration," in which he traced the development of our foreign service and emphasized the need for a permanent diplomatic service based solely on merit. W. W. Nichols offered a plan of reorganization of our foreign service looking toward stability in organization, special government training, and coordination of all classes of foreign service. Resolutions were adopted, in substance, as follows: the League recorded its satisfaction with the application of the merit system in the appointment of postmasters of the 1st, 2nd, and 3rd classes; it urged the practice be secured by statute and extended to include other offices. It urged Congress to take immediate action to place the federal civil service on a sound business basis with promotion based on efficient performance of duty. To this end, a bill had been prepared based on recommendations of the Congressional Joint Commission on Reclassification of Salaries. It called attention to the necessity for application of the merit system to all branches of the foreign service and voiced its apprehension at the enactment of veteran preference statutes throughout the country.

At the November meeting considerable discussion was had concerning the "Rule of One"

and the "Rule of Three." The League through its president, urged the appointment of the person at the head of the list, instead of one from the first three. Addresses were delivered on each practice by Hon. Robert Catherwood and Hon. William Gorham Rice, respectively. The exemption from the civil service law of prohibition enforcement agents was disparaged. Statistics showing the undesirable effects of veteran preference legislation in the States were furnished. Specific resolutions were adopted at this meeting, advocating the following: legislation requiring application of the civil service law to postmasters and appointment of the one with the highest standing; extension of the law to include other officials, such as internal revenue officers, U. S. marshals, under-secretaries, etc., and thousands of other positions exempted by acts of Congress; an appropriation for the National Civil Service Commission to do away with the inefficiency and duplication in many government departments and bureaus; abrogation of legislation which gave veteran preference; and reorganization of the foreign service on merit system.

The officers of 1921 are Richard Henry Dana, president; A. S. Frissell, treasurer; H. W. Marsh, secretary; and Arthur R. Kimball, chairman of the League Council. Headquarters are 8 West 40th Street, New York City.

CLARK, CHAMP. Democratic leader, Speaker of the House of Representatives, died at Washington, D. C., March 3. He was a representative from Missouri for twenty-four years, and served as Speaker for eight years preceding his death. He was born in Anderson County, Ky., March 7, 1850, and educated at Kentucky University, Bethany College, and the Cincinnati Law School. He was president of Marshall College, West Virginia, 1873-74. In 1893 he was elected to Congress from Missouri and after 1897 he was reelected to the three succeeding Congresses. He showed a great ability as a minority leader and was chosen Speaker of the House in the Sixty-second Congress in which office he was successful in perfecting organization and establishing discipline. At the National Democratic Convention at Baltimore in 1912, he was one of the leading candidates for the presidential nomination and it was only after the forty-sixth ballot that his chief competitor, Woodrow Wilson, obtained the nomination. He continued to be Speaker of the House down to 1919 and he was the Democratic minority leader in the Sixty-sixth Congress.

CLARK, JESSE REDMAN. Life insurance president, died at Petosky, Mich., September 25.

He was born at Cincinnati, Ohio, Oct. 31, 1854, and educated at the Ohio Wesleyan University. He was made cashier of the Union Central Life Insurance company in 1878, treasurer 1886-1906, and after that president.

CLARK, JOHN EMORY. Mathematician and educator, died, January 30. He was born at Northampton, N. Y., August 8, 1832; graduated at the University of Michigan, 1856, and in the same year was appointed to the professorship of mathematics in the Michigan State Normal School. After serving as assistant-professor of mathematics at the University of Michigan, 1857-90, he studied at universities in Germany, and then went into surveying work in Dakota and Colorado. During the Civil War he served in the Michigan cavalry reaching the rank of brevet lieutenant-colonel in 1865. He was professor of mathematics at Sheffield Scientific School, Yale, 1873-1901, after which he was professor emeritus.

CLARK UNIVERSITY. A non-sectarian institution for graduate study only, situated at Worcester, Mass.; founded in 1889. The enrollment for the fall of 1921 was 337 of whom 140 were in the graduate department. The enrollment for the summer session was 191. The faculty numbered 31. The productive funds amounted to \$4,239,350 and the income was \$191,620. There were 96,000 volumes in the library. President, Wallace W. Atwood.

CLARKE, ELIOT CHANNING. Engineer, died, May 4. His work had a wide range, including bridge, sewerage, and water works construction; and he was the author of reports and other writings on the subject of drainage. He was born at Boston, Mass., May 6, 1844; graduated at Harvard in 1867, and studied civil engineering at the Massachusetts Institute of Technology. He then practiced civil engineering in various parts of the country from 1868 to 1886 in connection with the building of railways, bridges, tunnels, water works, and sewerage systems, and from 1885 to 1904 he was the treasurer of a cotton mill. He wrote a volume on the drainage works of Boston (1885), and in the following year was the author of a report on a system of drainage for the valley of the Charles, Blackstone, and Mystic rivers. He also wrote *Astronomy from a Dipper* (1909).

CLARKE, RICHARD FLOYD. Lawyer, died September 16. He was born at Columbia, S. C., Oct. 14, 1859, and graduated at the College of the City of New York in 1880. From 1885 to 1903 he was senior member of the firm of Clarke and Culver and was counsel for many large corporations and in cases involving international litigation.

CLASSICAL LITERATURE AND SCHOLARSHIP. See PHILOLOGY, CLASSICAL.

CLAY PRODUCTS. The quantity and value of the domestic raw clay marketed by miners in the United States in 1920—estimated at 3,159,000 tons, valued at \$12,094,000, or \$3.83 per ton—showed a large increase, as compared with 1919, according to the United States Geological Survey.

Practically every kind of clay showed a large increase in output and value. Fire clay, the kind showing the largest output and value, made the largest increase, 685,000 tons, or 40 per cent. The output of this clay was estimated to have been 2,400,000 tons, or 76 per cent of all clay marketed. It was valued at \$7,720,000, or

\$3.22 per ton, at the mine, an increase in value of 86 per cent compared with 1919. The average price per ton increased 33 per cent. The output of kaolin and paper clay, the purest form of clay, which is used chiefly in making paper, high-grade pottery, tile, oil cloth, paint, etc., amounted to 264,000 tons, valued at \$2,385,000, an increase of 41 per cent in quantity and of 45 per cent in value. The average price per ton, however, \$9.03, increased only 2.5 per cent, as compared with 1919.

The output of ball clay, also used largely for high-grade pottery and refractories, increased from 93,000 tons in 1919 to 145,000 tons in 1920. The value of this output increased from \$637,000 to \$1,340,000. The average value per ton was \$9.24, an increase of 33 per cent, as compared with 1919.

The imports of clay in 1920—403,580 short tons, valued at \$4,008,669 at the principal markets of the countries from which the clay was exported—increased 97 per cent in quantity and 86 per cent in value, as compared with 1919. There was an increase in both the quantity and the value of every kind of clay imported. Kaolin or china clay rose from 180,592 tons, valued at \$1,965,393, in 1919, to 361,800 tons, valued at \$3,568,677 in 1920. The imports of kaolin in 1920 were 10 per cent greater than those in 1914, the year of largest imports prior to 1920. The average price per ton was \$9.86, as compared with \$10.88 in 1919. This price, however, which was the price abroad, was only a fraction of the price of foreign clay in New York, where, in 1920, imported kaolin was quoted as high as \$25 a ton. Only 4 tons of common blue and Gross Almerode clays, valued at \$133, were imported in 1919, but in 1920 the imports of these clays increased to 6837 tons, valued at \$157,201. This was only a little more than one-fourth of the imports of these clays in 1913, the year of maximum imports. The imports of unwrought or unmanufactured clay, which is thought to be chiefly English ball clay, were 34,252 tons, valued at \$272,524, an increase of about 45 per cent in quantity and value.

The total quantity of clay exported in 1920 was 120,160 tons, valued at \$1,168,399, an increase of 75 per cent in quantity and 128 per cent in value. Fire clay, the only kind designated, constituted 45 per cent of the clay exported.

CLEARINGS, BANK. See FINANCIAL REVIEW.
CLÉMENT, EDOUARD. See MUSIC, Artists, Vocalists.

CLEVELAND, OHIO. See MUNICIPAL GOVERNMENT.

CLIMATE. See METEOROLOGY.

CLINTON, GEORGE WYLIE. American negro bishop, died, May 12. He was born in Lancaster County, S. C., March 28, 1859, his father and mother being slaves; studied at the University of South Carolina; afterwards studied theology at Livingstone College, N. C.; and entered the ministry of the African Methodist Episcopal Zion Church in 1879. For twelve years he taught in the Lancaster high school and the Union graded schools in South Carolina; and for eight years, was president of the Atkinson Literary and Industrial College, Madisonville, Ky. He edited the *Zion Quarterly Review* and the *Star of Zion*; and was prominent in various publishing and other institutions of his church. He wrote: *The Three Alarm Cries* (1906); *Tuskegee Lectures* (1907); and

Christianity under a Searchlight (1909). In 1896 he was elected bishop.

CLOTHIER, ISAAC HALLOWELL. See NECROLOGY.

CLUBS, BOYS AND GIRLS. See AGRICULTURAL EXTENSION WORK.

COAL. According to the Geological Survey the year 1921 was one of prostration for the coal and coke industries and the depression had not been matched since 1893. Anthracite, however, was an exception to this statement, for until late in November the hard coal mines continued in active operation and the total output for 1921 was not far behind either of the two years just preceding.

BITUMINOUS COAL. The production in 1920 was 556,516,000 tons and in 1921 was 406,990,000. Bituminous production in the United States has normally increased with rapidity. For example, between 1891 and 1901 it nearly doubled and the same thing happened between 1901 and 1911. By 1920 the normal production was about 550,000,000 tons. Thus the record of 1921 seemed to mean more than a temporary setback to the tonnage of 1911 and indicated a prostration similar to that which had followed the panic of 1893. In connection with the low production of soft coal it should be noted that the movement of coal in the Great Lakes had virtually ceased toward the end of 1921; also that during October when a railroad strike was expected, consumers increased their stocks and millions of tons went into storage. The exports of bituminous coal including shipments to Canada and Mexico were 7 per cent greater in 1921 than in 1913, the figures being about 20,690,000 tons in 1921 against 17,987,000 in 1913.

ANTHRACITE. At the close of the year many anthracite collieries had shut down and thousands of miners were idle. The falling off of demand which was evident in late November had grown steadily as December advanced and in Christmas week the output dropped to about one-half of what it had been during the same week the year before. On the whole, however, the production of anthracite for 1921 compared not unfavorably with the years preceding excluding the war years. The exports of anthracite for 1921 were estimated at a figure slightly in excess of the prewar year 1913. The following information in respect to the labor cost was supplied at the close of the year: "In 1913 there were produced 71,046,816 tons of anthracite, at a labor cost of \$113,320,000, or about \$1.59 a ton. The production in 1920 was 65,458,673 tons and the labor cost was \$252,179,000, or \$3.85 a ton, an increase of 141 per cent. These figures are based on commercial fresh mined coal exclusively. The coal consumed at collieries and the washery or dredge product is not included. Anthracite producers believe that mine workers should receive liberal compensation, but they recognize the fact that the price of coal must be reduced in line with the downward movement in all other basic commodities. Labor now absorbs 70 per cent of the cost of producing anthracite.

"Until wages are lowered a reduction in the mine price of anthracite is impossible. It is not a question of the operators accepting a smaller profit. If those producers who are making any profit at present were to forego their entire net return the effect on the mine price of coal would be negligible. The present wage agreement, which is based on the award of the United States Anthracite Coal

Commission, does not expire until March 31, 1922. Leading officials of the miners' union have indicated opposition to any decrease in wages at the expiration of the contract. Anthracite producers, however, feel that the question of a readjustment of mine wages will be determined by the opinion of the public, which has a vital interest in the matter."

GREAT BRITAIN. In the last twelve months before the war Great Britain exported 73,000,000 tons of coal plus 20,000,000 tons of bunker coal for ships as against an exportation of about 32,000,000 tons by Great Britain's chief rival, Germany. The year 1921 began under government control and under state subsidies with the highest wages and the lowest output per operator ever recorded. The labor cost at the pits during the first quarter averaged 30s. per ton. Only about 57,000,000 tons were obtained from 1,200,000 miners in 13 weeks which was a rate of production of about 177 tons a year per person employed. In the second quarter the coal stoppage was the most serious that had ever been recorded. "Decontrol" was announced for the end of March and the owners and operatives were both entirely upset in their estimates and negotiations. Notice of reduction of wages was met by resistance and the result was the withdrawal of the working-men down even to the pump-men of the mines. Trade for the time being was paralyzed. During the last six months of the year wage reductions were enforced and there was extensive unemployment and part-time work, but the output per operative was greatly increased and the reduction in cost per ton amounted to 50 per cent. At the close of the year the exports of coal were regaining their former level. The following table shows coal production, exports, and prices after 1913:

BRITISH COAL PRODUCTION, EXPORTS, AND PRICES

	Tons	
	Output	Exports
1913.....	287,000,000	77,000,000
1914.....	265,000,000	62,000,000
1915.....	253,000,000	46,000,000
1916.....	255,000,000	41,000,000
1917.....	248,000,000	38,000,000
1918.....	226,000,000	34,000,000
1919.....	229,000,000	38,000,000
1920.....	229,000,000	27,000,000
1921.....	* 160,000,000	* 25,000,000

* About.

The average weekly output in 1920 and for the respective quarters of 1921 was as follows:

AVERAGE WEEKLY OUTPUT OF COAL IN TONS	
1920.....	4,409,000
1921 (first 13 weeks—last quarter before big stoppage).....	4,307,000
1921 (four weeks ended Oct. 29).....	4,243,000
1921 (four weeks ended Nov. 26).....	4,642,000
1921 (four weeks ended Dec. 24).....	4,850,000

Largely because of the non-profit prices of the British, their coal exports for the months of August, October, and November increased 32 per cent over corresponding months of 1920; whereas, United States exports decreased 44 per cent in the same period. Shipments of British coal were actually made to the West Indies, a market held exclusively by the United States for twenty years. During the period November 3 to December 30, eight cargoes, including two to Colon, were cleared

from South Wales ports for the United States Pacific coast and for Honolulu. The c. i. f. costs of British coal at West Italian ports, at the close of the year were from \$0.65 to \$2.35 lower than the c. i. f. costs of United States coal, the difference depending on grade and kind; at Rio the British c. i. f. costs were from \$0.21 higher to \$0.52 lower than for United States coal. British mine wages at the close of the year were at rock-bottom, since they were at the minimum fixed by the agreement of 1921. In the three chief coal fields, those of South Wales, Northumberland, and Durham, the average wage per week for coal hewers were reported to be 57s. 4d. or about \$12.04 (conversion into United States currency being made on the basis of £1=\$4.20). British wages in these fields had since March, 1921, been reduced on an average of about 46 per cent. American wages are still at wartime levels. British railway coal freight rates had been cut approximately 12½ per cent, the reduction being effective January 1.

British total production and the output for men employed increased after the strike, but the output per man was still at the close of the year far below that for the United States. The total British production for 1920 was 229,000,000 gross tons as against 287,000,000 in 1913; the output for 1921 was about 164,354,000. The use of mining machinery in British mines was not increasing rapidly; in 1920, the total machine mined coal was 12.8 per cent of the total production, as against 59 per cent in the United States in 1919. British costs of mine supplies are from 79 per cent for pit-wood to 235 per cent for material and stores over 1914 costs.

WORLD PRODUCTION. According to the United States Geological Survey the world's production of coal fell back to the level of 1909, the total output being estimated at about 1,000,000,000 metric tons. "In comparison with the feverish year 1920 the year just closed shows a decrease of more than 200,000,000 tons," its report declared. The chief factors in the decrease were the British miners' strike, which lasted from April to June, and, more important, a worldwide industrial depression. Prices collapsed early in the year and the seaborne coal trade of the world fell off sharply. The consequent reduction in the volume of business offered to the shipping of the world has been an important element in the decline in ocean freight rates, so keenly felt by the American merchant marine. Of the major coal-producing nations, France and Germany were the only ones to show an increase. Progress in restoring the ruined mines of France is indicated by the steady increase in output of the past three years. In 1919 22,000,000 tons were produced; in 1920, 25,000,000; in 1921, approximately 29,000,000. A further increase of 12,000,000 tons, however, would be necessary to bring French production up to the level of 1913. The estimated German output of 120,000,000 tons of lignite is an increase of 33,000,000 tons over the last year before the war. "The proportion contributed by the United States was 40.9 per cent, a larger share than in the years before the European war, but the smallest in any years since 1916."

COAL STRIKES. See **STRIKES AND LOCKOUTS.**

COAN, TITUS MUNSON. Author, died, May 8. He was born in the Hawaiian Islands in 1836 and educated at Williams College and at the College of Physicians and Surgeons of Columbia University.

He was engaged in hospital duty during the Civil War and from 1863 to 1865 was assistant-surgeon in Admiral Farragut's squadron. He founded in 1880 the New York Bureau of Revision and was its director. Among his writings may be mentioned: *Ounces of Prevention* (1885); *The Natives of Hawaii* (1901); *Climate of Hawaii* (1901).

COAPMAN, EUGENE H. Railway manager, died, January 5. He was born, August 15, 1865; and began his career as a messenger boy and telegrapher operator. In 1886 he became a train dispatcher on the Chicago, Minneapolis, and St. Paul railway. He rose to the rank of superintendent of division in 1902, and then held the office of manager successively on several southern lines. After January, 1910, he was made general manager of the entire Southern Railway system, and later became Federal manager.

COASTLAND (German *Küstenland*). A part of the former kingdom of Austria, comprising the crownland of Istria Görz, Gradisca, and Trieste. Area, 3078 square miles; population in 1918, 893,797. Trieste is the largest city with a population before the war of 246,500 including the district. Other cities are Pola, a former Austrian naval base, with 59,300, and Görz (Gorizia) 32,600.

COATES, ALBERT. See **MUSIC, Orchestras.**

COATS, EDWARD HORNER. Former president of the Pennsylvania Academy of Fine Arts, died at Philadelphia, December 23. He was born at Philadelphia, Nov. 12, 1846, and graduated at Haverford College in 1864. He was director of important insurance and saving institutions and president of the Pennsylvania Academy of Fine Arts, 1890-1906.

COCHIN-CHINA. The most southerly division of the French colonial possessions of Indo-China (q. v.). Area, estimated at 20,000 square miles, which is divided into seventeen provinces. The total population in 1919 was placed at 3,452,248 of whom 6301 were Europeans, excluding the military. The capital is Saigon with a population of 64,496 including 4161 Europeans and 2200 troops. The largest city is Cholon with a population of about 190,085 of whom about 97,211 are Chinese. The chief product is rice, but rubber production has been developed of late. Other crops include: Corn, beans, and other vegetables, oranges, bananas, and other fruits, tobacco, coffee, sugar cane, betel nuts, etc. Live stock and fisheries are important resources. In 1919, 589 steamships of 895,592 tons entered the port of Saigon. Total exports in 1919 were 980,777,780 francs; imports, 84,202,744 francs. The colony is under a resident governor and a colonial council of eighteen members, and is represented in the French parliament by one deputy.

COE COLLEGE. An institution of the higher education at Cedar Rapids, Iowa; founded in 1881. The enrollment in the fall of 1921 was 767 of whom 416 were women, and the enrollment at the summer school was 306. In the fall of 1921 there were 56 members of the faculty to whom there were afterwards added 6. The productive funds amounted to \$1,200,000 and the income was \$198,500. The library contained 18,000 volumes. President, Harry Morehouse Gage, LL.D.

COFFIN, OWEN VINCENT. Former governor of Connecticut, died January 3. He was born at Unionvale, N. Y., June 20, 1836; and was a resident of Middletown, Conn., where he became

an officer in its chief financial institutions, and of which he was mayor, 1872-73. He was a member of the State Senate, 1887-1891, and governor, 1895-97. In politics he was a Republican.

COGSWELL, WILLIAM BROWN. Manufacturer, died, June 7. He was born at Oswego, N. Y., Sept. 22, 1834; studied at Rensselaer Polytechnic Institute; and was made assistant-superintendent of the Marietta and Cincinnati railway in 1856. During the Civil War he served in the navy.

From 1869 to 1873 he was engaged in building and operating the blast furnaces of iron works in Oneida County, N. Y. He afterwards established the well-known plant for the manufacture of soda products, the Solvay Process company, of which he became managing director and vice-president.

COINS, VALUE OF FOREIGN. The estimates of the value of foreign coins for the beginning of 1922 shown in the accompanying table were issued by the United States Director of the Mint.

Country	Legal standard	Monetary unit	Value in terms of U. S. money	Remarks
Argentina Republic.....	Gold	Peso	\$0.9648	Currency: Paper, normally convertible at 44 per cent of face value; now inconvertible.
Austria-Hungary.....	Gold	Krone	.2026	
Belgium.....	Gold and silver	Franc	.1930	Member Latin Union; gold is actual standard.
Bolivia.....	Gold	Boliviano	.3893	12½ bolivianos equal 1 pound sterling.
Brasil.....	Gold	Milreis	.5462	Currency: Government paper normally convertible at 16 pence (= \$0.3244) per milreis.
British Colonies in Australasia and Africa.....	Gold	Pound sterling	4.8665	
British Honduras.....	Gold	Dollar	1.0000	
Canada.....	Gold	Dollar	1.0000	
Chile.....	Gold	Peso	.3650	Currency: Inconvertible paper.
China.....	Silver	Tael.	Amoy .8156	The tael is a unit of weight; not a coin. The customs unit is the Haikwan tael. The values of other taels are based on their relation to the value of the Haikwan tael.
			Canton .8131	
			Cheefoo .7801	
			Chin Kiang .7967	
			Euohau .7544	
			Haikwan .8299	
			(customs)	
			Hankow .7631	
			Kiaochow .7903	
			Nankin .8071	
			Niuchwang .7648	
			Ningpo .7841	
			Pekin .7951	
			Shanghai .7450	
			Swatow .7534	
			Takau .8207	
			Tientsin .7903	
		Dollar	Yuan .5344	The Yuan silver dollar of 100 cents is the monetary unit of the Chinese Republic; it is equivalent to .644 + of the Haikwan tael.
			Hongkong .5364	
			British .5364	
			Mexican .5404	
Colombia.....	Gold	Peso	.9733	Mexican silver pesos issued under Mexican decree of Nov. 13, 1918, are of silver content approximately 41% less than the dollar here quoted; and those issued under decree of Oct. 27, 1919, contain about 51% less silver.
Costa Rica.....	Gold	Colon	.4653	Currency: Government paper and gold.
Cuba.....	Gold	Peso	1.0000	
Denmark.....	Gold	Krone	.2680	
Ecuador.....	Gold	Sucre	.4867	
Egypt.....	Gold	Pound (100 piasters)	4.9431	The actual standard is the British pound sterling, which is legal tender for 97½ piasters.
Finland.....	Gold	Markka	.1930	
France.....	Gold and silver	Franc	.1930	Member Latin Union; gold is actual standard.
Germany.....	Gold	Mark	.2382	
Great Britain.....	Gold	Pound sterling	4.8665	
Greece.....	Gold and silver	Drachma	.1930	Member Latin Union; gold is actual standard.
Guatemala.....	Silver	Peso	.4975	Currency: Inconvertible paper.
Haiti.....	Gold	Gourde	.2000	Currency: Inconvertible paper.
Honduras.....	Silver	Peso	.4975	Currency: Bank notes.
India [British].....	Gold	Rupee	.4866	(10 rupees equal 1 pound sterling.)
Indo-China.....	Silver	Piaster	.5373	
Italy.....	Gold	Lira	.1930	Member Latin Union; gold is actual standard.
Japan.....	Gold	Yen	.4985	
Liberia.....	Gold	Dollar	1.0000	Currency: Depreciated silver token coins. Customs duties are collected in gold.
Mexico.....	Gold	Peso	.4985	
Netherlands.....	Gold	Guilder (Florin)	.4020	
Newfoundland.....	Gold	Dollar	1.0000	
Nicaragua.....	Gold	Cordoba	1.0000	
Norway.....	Gold	Krone	.2680	

Country	Legal standard	Monetary unit	Value in terms of U. S. money	Remarks
Panama.....	Gold	Balboa	1.0000	
Paraguay.....	Gold	Peso (Argentine)	.9648	Currency: Depreciated Paraguayan paper currency.
Persia.....	Silver	Kran	.0916	Currency: Silver circulating above its metallic value. Gold coin is a commodity only, normally worth double the silver.
Peru.....	Gold	Libra	4.8665	
Philippine Islands.....	Gold	Peso	.5000	
Portugal.....	Gold	Escudo	1.0805	Currency: Inconvertible paper.
Roumania.....	Gold	Leu	.1930	
Russia.....	Gold	Ruble	.5146	
Salvador.....	Gold	Colon	.5000	
Santo Domingo.....	Gold	Dollar	1.0000	
Serbia.....	Gold	Dinar	.1930	
Siam.....	Gold	Tical	.3709	
Spain.....	Gold and silver	Peseta	.1930	Valuation is for gold peseta; currency is notes of the bank of Spain.
Straits Settlements.....	Gold	Dollar	.5678	
Sweden.....	Gold	Krona	.2680	
Switzerland.....	Gold	Frano	.1930	Member Latin Union; gold is actual standard.
Turkey.....	Gold	Piaster	.0440	(100 piasters equal to the Turkish £.)
Uruguay.....	Gold	Peso	1.0342	
Venezuela.....	Gold	Bolivar	.1930	

COIT, JUDSON BOARDMAN. College professor, died, July 26. He was born in Oswego County, N. Y., June 5, 1849, and graduated at Syracuse University in 1875, becoming in the same year professor of mathematics at Dickinson Seminary, Williamsport, Pa. He was afterwards engaged at the observatory at Ann Arbor and taught school at Cleveland. In 1882 he became assistant-professor in Boston University, where he was professor of mathematics and astronomy 1884-1915, and professor of astronomy after 1915.

COKE. According to the *Iron Age* the figures indicated a coke production in the United States during the year of less than 3,400,000 net tons, or less than one-third of the output of the previous year, and the ton value of 1921 production was less than one-third of that of the previous year, calculating on the average price for the whole year. The average price of spot or prompt Connellsville furnace coke for 1921, based on the weekly prices of the *Iron Age* was \$3.32 per net ton at ovens. The highest price of the year, which was made early in January, was \$5.50. The 1920 average price of this grade was \$11.32, while the peak price was \$19. The descent in foundry coke prices in 1921 was in like ratio, although the demand for this grade relatively was better than that for furnace fuel, because the foundries averaged a slightly better relative operation than did the blast furnaces. The average price for spot or prompt Connellsville foundry coke for 1921, was \$4.63 per net ton at ovens, which compared with \$13.10, the 1920 average, while the top price in 1921 was \$7, as compared with \$20 in 1920.

There were several wage reductions during the year which materially reduced the costs of the Connellsville mine and oven operators, but they did not avail much in producing profits because never during the year was there very full mine or coke oven operations. The wage scale in effect at the close of the year was that posted by the H. C. Frick Company, effective August 1. This schedule was the same as that of Nov. 10, 1917, of the same company. Independent operators for a time were paying a lower scale, but the threat of a

strike and possible unionization of the district resulted in their adoption of the Frick scale, which, as compared with those unionized coal mining districts, gave the Connellsville operators a decided advantage as to costs. It is because of this advantage that the results for 1921 were not worse than they were, since it permitted the naming of prices on coal with which operators of union mines could not compete, and Connellsville coal moved to a number of markets not usually reached.

The coke market in 1921 reversed its 1920 course. Instead of a demand well in excess of supply, which carried prices to the highest levels attained since coke production began on a commercial scale, there was always a sufficient supply and prices descended to the most reasonable bases in several years. Not a factor which contributed to the 1920 conditions remained in 1921. Steel companies operating their own by-product coke plants were not forced in 1921, as they were in the previous year, to depend on the beehive ovens, for a goodly part of their coke requirements, owing to the Fuel Commission regulations, which made it difficult to secure coal for their by-products plants; nor in the year 1921 did the steel companies have transportation difficulties to defeat their coke-producing efforts, and export demands were lacking as an excuse for pushing up the price of coal.

COLGATE UNIVERSITY. A non-sectarian university of higher learning at Hamilton, N. Y.; founded in 1819. The enrollment for the fall, 1921, was 678 of whom 55 were in the seminary. The faculty numbered 50, of whom were appointed in the course of the year: A professor of economics, and an associate professor of Romanic languages; assistant professors of Latin and public speaking; two instructors; an assistant in music; and a librarian. The productive funds were \$3,140,880. The library contained 95,441 volumes. The acting president after the resignation of Dr. Elmer Burritt Bryan, was Dr. Melbourne S. Reid.

COLLEGES. See UNIVERSITIES AND COLLEGES.
COLLEGES, AGRICULTURAL. See AGRICULTURAL EDUCATION.

COLLOIDS IN MEDICINE. Most of the drugs in use in medical practice at the present day are in the form of exact chemical compounds in crystalline state, which naturally conduce to solution. The tendency to pass from the old composite tinctures and extracts of crude drugs to active alkaloidal principles readily soluble in water has generally been regarded as marking an advance in the evolution of medicine. The creation of new crystalline drugs by synthesis has been considered the next logical step. But for several years past a counter movement has been in evidence. Attention has been called to the fact that these crystalline active principles and synthetics are all symptomatic remedies—they relieve symptoms and influence functions in every conceivable way, but show no power over the disease process. Attention was also called to the fact that substances in the colloidal or insoluble, nondialyzable form exert functions of a nature entirely distinct. Thus every alkaloid and synthetic exerts a special activity depending on its chemical composition. Now in the case of matter in the colloidal form the composition of the substance means little, but the colloidal state of matter means everything. Two substances wholly different in composition and physiological activity may in the colloid form exert the same type of action. In crystalline substances the dose is of the greatest significance and the action varies with the size of dose. In the case of colloids the dose like the composition is of secondary importance. The actual amount of the substance involved in the drug action is usually very minute.

Moreover, colloids often exhibit a remarkable power over diseases themselves, whether by antagonizing the living causes or because they stimulate the fighting force of the organism. While at present we cannot control their use to anything like the degree shown for crystalline substances, we continually see cases in which there is a phenomenal action exerted on the disease process itself and not merely on the symptoms.

The use of colloids is not directed against any particular class of diseases. Most of the affections which ordinarily seem beyond the direct influence of drugs such as continued fevers on the one hand and the degenerative and malignant affections in late life have in special cases shown some tendency to respond to this plan of treatment.

The use of colloidal remedies was precipitated by the practice of giving active substances by intravenous injection. The blood itself is a colloidal fluid and substances in the colloidal state are less foreign to it. Inorganic colloids in the form of suspensions of metallic particles in a state of very fine subdivision, while they have no proper physiological activity, are capable of causing violent chills and fever which sometimes exerts a curative action. It was noted that these reactions were of the same nature as those which are produced by the injections of organized fluids containing albumin. For a term of years these reactions were looked on as specific for the substance injected, but of late years it has become increasingly apparent that the reactions were due merely to the colloidal state of the albuminous or protein substances injected. It then became possible to understand why diphtheria antitoxin could sometimes favorably influence conditions which were quite distinct in nature from diph-

theria. At present we do not know to just what extent some of these serums and vaccines act specifically, and to what extent they act as simple colloids.

In a recent article in the *British Medical Journal* (November, 19) by Auld the latter announces his belief that in suspensions of inorganic (metallic) colloids the albuminous substances used in making the suspensions are the actual cause of the reactions. He wishes to term colloidal therapy, as far as it depends on these violent reactions, pyrogenic treatment, because it induces fever. The latter is a *sine qua non* of the treatment. He does not allude to the treatment of severe acute infections in this paper but quotes some favorable results in hastening resolution in recent pleuritis, pneumonias, and swollen joints. The treatment cannot be used in routine because the public does not welcome intravenous medication unless this seems necessary. The dose must be regulated by the degree of reaction desired. One good reaction is expected to clear up the condition. If mild reactions seem advisable the injections will probably have to be repeated. The character of the substance used is quite immaterial and the author likes typhoid vaccine (it must be borne in mind that the conditions treated have nothing in common with typhoid fever) and also the protein substance known as caseose. In the present paper he lauds colloidal treatment of the great family of affections attributable to chilling and exposure which respond to the application of external heat. The artificial fever set up appears to act on the same principle but more thoroughly.

COLOMBIA. A South American republic situated in the northwestern part of the continent. Capital, Bogotá.

AREA AND POPULATION. Boundary disputes caused the estimates of area to vary. According to a recent estimate the area was 440,846 square miles. An estimate made after the boundary agreement with Ecuador placed the area at 435,000 square miles. The population according to the census of March 5, 1918, was 5,847,491 of whom about 160,436 were Indians. The males numbered 2,745,748 and the females, 2,941,307. The country is divided into fourteen departments, three intendencias, and six commissionerships. The capital, Bogotá, had a population, July 15, 1918, of 143,994. Other cities are Barranquilla, 66,107; Cartagena, 51,382; Medellín, 79,146; Cali, 45,524; Manizales, 39,643.

EDUCATION. The republic has 5453 institutions of public instruction, attended by 350,241 pupils, as follows: Primary schools, 5317, with 337,315 pupils; secondary schools, 73, with 7305 pupils; professional schools, 28, with 2784 pupils; industrial schools, 35, with 1606 pupils; normal schools, 27, with 1231 pupils. Each department has a normal school for young men and another for young women, except Santander, which has three. In the 13 schools for young men there are 454 students and in the 14 for young women, 777, with 21 teachers in each school. In 1921 there were 195 normal-school graduates, 85 upper-grade teachers, and 110 primary teachers. Two normal schools, one for young men and the other for young women, are being constructed on the Avenida de Chile in Bogotá. Secondary instruction is given in the following schools: Colegio Nacional de San Bartolomé, which has 700 pupils; Colegio Mayor de Nuestra Señora del

Rosario and the School of Commerce of Bogotá, as well as in the Schools of Philosophy and Belles Lettres of the Universities of Antioquia, Cartagena, Nariño, and Popayán; in the municipal schools of Boyacá, San Simón de Ibagué, and Sta. Librada de Neiva, and in various private institutions. The principal school for industrial instruction is the Central Technical Institute, in which, besides theoretical studies in different branches of literature and mathematics, practical work is given in mechanics, textiles, carpentry, electricity, drawing, sculpture, and ornamentation. At the capital are the School of Fine Arts, with 87 students and 11 professors; the National Conservatory, with 220 students; the School of Philosophy and Belles Lettres of the Colegio Mayor de Nuestra Señora del Rosario; the advanced School of Agriculture and Veterinary Science; the School of Medicine, with 500 students; the Engineering School, with more than 200

asset in facing the new adverse situation. During the first half of the present year it was apparent that the Colombian market had already been stocked sufficiently to meet the demands for two years. Goods purchased lavishly at the peak of the world's price level met a poor reception in a region where the chief source of income lay in warehouses or even in the fields. American exporters were finding that credits extended indiscriminately to unknown firms were being repudiated, and large and responsible concerns in Colombia were complaining that as a result they were being unfairly judged, and that foreign importers were selling to their customers and thus conducting trade in the most unproductive way. It was stated in the early summer that over 75 per cent of the merchants in Colombia were in danger of bankruptcy if pushed by banks.

FINANCE. The budget estimates ending Dec. 31, 1920, were as follows:

<i>Revenues</i>	<i>Gold Pesos</i>	<i>Expenditures</i>	<i>Gold Pesos</i>
Salt Tax.....	1,655,000	Ministry of Interior.....	7,818,049
Railways.....	600,000	Ministry of Foreign Affairs.....	477,671
Telegraphs.....	900,000	Ministry of Finance.....	1,765,412
Customs.....	12,000,000	Ministry of War.....	3,879,950
Consular Dues.....	12,000,000	Public Instruction.....	2,869,861
Stamps.....	900,000	National Debt Service.....	5,111,810
Succession Duties.....	300,000	Public Works.....	5,590,574
		Agriculture and Commerce.....	279,254
Total (including all revenues).....	23,845,250	Total.....	27,792,581

students; and the Law School, with 250 students.

PRODUCTION. Only a small part of the country is under cultivation. Coffee is the chief product but of late years cotton cultivation has increased in importance. Other products are wheat, tobacco, cocoa, sugar, vegetable ivory, dyewoods, various fruits, rubber, etc. The Panama hat industry is of importance and has latterly made great advance. Efforts to develop petroleum drilling have recently been made. Other mineral products are gold, copper, lead, mercury, cinnabar, manganese, emeralds, and platinum. The mineral resources are rich but have not been fully developed.

FOREIGN TRADE. The following information was supplied by the Bureau of Foreign and Domestic Commerce toward the close of the year: In 1920 Colombia's imports for the first time exceeded \$100,000,000, when the imports jumped from 48,487,764 Colombian dollars in 1919 to 101,397,905 Colombian dollars in 1920. The exports, on the other hand, dropped from 79,029,255 Colombian dollars in 1919 to 71,017,729 Colombian dollars in 1920. These figures can be explained by the condition of the coffee industry, the economic barometer of Colombia. In 1919 there was a good coffee crop, which was exported chiefly to the United States to the value of 54,291,638 Colombian dollars—nearly three times the largest amount ever received from coffee exports in a single year. The unprecedented income from this source greatly increased for the time being the buying power of the people, and during the first part of 1920 large orders were placed, regardless of the prevailing high prices. On the other hand, the coffee crop of 1920 met a dull market, and the people found that their previous prosperity had brought them only an increased standard of living, which proved a poor

For the year ending Feb. 28, 1921, the expenditures were given at 16,000,000 pesos, making, with the deficit of 6,000,000 pesos for the preceding year, a total of 22,000,000 pesos. The foreign debt, Jan. 1, 1921, was £3,887,109. The internal debt, March 1, 1920, was 2,848,260 gold pesos, consolidated, and 10,840,654 pesos, floating.

GOVERNMENT. Panama declared its independence on Dec. 4, 1893, and was constituted a separate republic. Its independence was recognized by the Colombian government in a treaty with the United States signed April 6, 1914, and in return the United States agreed to pay \$25,000,000 and to guarantee certain rights in the Panama Canal Zone. This treaty was ratified by the United States Senate on April 20, 1921. (See below.) The executive power is vested in a president elected by direct vote of the people for four years and not eligible for the next succeeding term; and legislative power in a Congress of two houses, namely the Senate of 34 members elected indirectly and the House of Representatives of 92 members elected by the people. President in 1921, Don Marco Fidel Suarez.

HISTORY. The treaty with the United States followed the same lines as that presented to the United States Senate in 1914 in the Wilson administration except that it omitted the expression of regret at anything that should have lessened the cordial relations between the two countries. It provided for the payment to the Colombian government of \$25,000,000, of which \$5,000,000 was to be paid in six months and the rest in four equal annual installments. It further provided that no duties or taxes other than those paid by American citizens should be imposed on Colombian citizens or on their goods or mail matter in the Canal Zone. It was ratified by the United States Senate by a vote of 69 to 19 on

April 21, and ratified by the Colombian Senate on October 13. On November 5 it was announced that opposition in the Chamber of the Deputies had arisen to its ratification. At this time a controversy between the administration of President Suarez and the Chamber of Deputies was going on in spite of the resignation of the Ministry, which had taken place, September 4, in the hope of putting an end to the difficulty.

COLORADO. POPULATION. According to the report of the census of 1920, there were 939,629 residents in the State, Jan. 1, 1920, as compared with 799,024 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	1,102,000	15,979,000	\$ 4,953,000
	1920	1,182,000	24,231,000	16,962,000
Oats.....	1921	217,000	6,727,000	2,220,000
	1920	204,000	6,426,000	3,856,000
Wheat.....	1921	1,719,000	23,239,000	17,662,000
	1920	1,405,000	25,273,000	34,118,000
Barley.....	1921	202,000	4,444,000	1,644,000
	1920	216,000	5,292,000	3,969,000
Rye.....	1921	92,000	1,058,000	635,000
	1920	100,000	1,180,000	1,239,000
Hay.....	1921	1,601,000	2,914,000	19,740,000
	1920	1,675,000	3,140,000	38,560,000
Beans.....	1921	38,000	342,000	923,000
	1920	52,000	416,000	1,310,000
Potatoes.....	1921	90,000	11,070,000	8,081,000
	1920	73,000	9,490,000	7,592,000
Gr. Sorghums..	1921	237,000	3,910,000	2,033,000
	1920	282,000	4,794,000	4,027,000

¹ Tons.

IRRIGATION AND DRAINAGE. The accompanying table presents the statistics of irrigation for the State of Colorado collected at the census of 1920. Statistics of acreage irrigated, of acreage, yield, and value of crops grown on irrigated land, and of cost of operation and maintenance relate to the year 1919; other items relate to the year 1920. Figures for the census of 1910 are given for purposes of comparison.

Item	Census of—		Increase ¹ Per cent
	1880	1910	
Number of all farms.....	59,934	46,170	29.8
Approximate land area of the state.....	acres 66,341,120	66,341,120	....
All land in farms.....	acres 24,462,014	13,532,113	80.8
Improved land in farms.....	acres 7,744,757	4,302,101	80.0
Number of farms irrigated.....	28,756	25,857	11.2
Area irrigated.....	acres 3,348,385	2,792,032	19.9
Area enterprises were capable of irrigating.....	acres 3,855,348	3,990,166	— 3.4
Area included in enterprises.....	acres 5,220,588	5,917,457	—11.8
Per cent irrigated:			
Number of all farms.....	48.0	56.0	....
Approximate land area of state.....	5.0	4.2	....
Land in farms.....	13.7	20.6	....
Improved land in farms.....	43.2	64.9	....
Excess of area enterprises were capable of irrigating over area irrigated.....	acres 506,963	1,198,134	—57.7
Excess of area included in enterprises over area irrigated.....	acres 1,872,203	3,125,425	—40.1
Area of irrigated land reported as available for settlement.....	acres 274,282	(²)	....
Capital invested.....	\$88,302,442	\$56,636,443	55.9
Average per acre enterprises were capable of irrigating.....	\$22.90	\$14.19	61.4
Estimated final cost of existing enterprises.....	\$95,198,423	\$76,443,239	24.5
Average per acre included in enterprises.....	\$18.24	\$12.92	41.2
Average cost of operation and maintenance per acre.....	\$0.87	\$0.75	....

¹ A minus sign (—) denotes decrease. Per cent not shown when base is less than 100.

² Not reported in 1910.

Item	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	59,934	100.0
Farms reporting land having drainage.....	2,749	4.6
Farms reporting land needing drainage.....	4,399	7.3
All land in farms.....	acres.. 24,462,014	100.0
Improved land in farms.....	acres.. 7,744,757	31.7
Farm land reported as provided with drainage.....	acres.. 127,037	0.5
Farm land reported as needing drainage.....	acres.. 270,997	1.1
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres.. 66,341,120	100.0
All land in operating drainage enterprises.....	acres.. 171,656	0.3
Improved land.....	acres.. 123,031	0.2
Unimproved land ¹	acres.. 48,625	0.1
Capital invested in and required for completion of operating enterprises.....	\$1,285,070	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	1,081,870	84.2
Additional capital required to complete these enterprises.....	203,195	15.8

¹ No timber or cut-over land reported.

Barstow mines. Gilpin and Clear Creek Counties both showed decreases in production. Development work in Hinsdale County promised results for 1922. Custer County silver mines continued operation. Eagle County shipped a large quantity of silver-iron ores, but all zinc ore mined was stored. The production of silver in both Boulder and Mineral Counties was not equal to that of 1920.

TRANSPORTATION. There are 37 railroad companies represented in Colorado, operating an aggregate of 5406.15 miles of main line track. Every county in the State except Baca County has some railroad mileage, though the railroad facilities of some other counties, particularly in the northwestern and southwestern parts of the State, are inadequate. The total value of railroad property in the State, as returned by the State tax commission for the year 1920, was \$161,677,790. A considerable part of the mileage of the Colorado Midland railroad was not being operated.

EDUCATION. The schools numbered approximately 3125 with 7675 teachers and a total enrollment of 229,508 pupils. Average salaries paid teachers have increased substantially in the past few years. The average salary paid high school teachers for the school year ending June 30, 1920, was \$122.43 per month, compared with \$106.45 in 1918. In 1920 the average salary in one-teacher schools was \$81.57, in two-teacher schools \$93.29, and \$96.22 in schools employing three or more teachers. The averages in the same classes of schools for 1918 were \$68.84, \$76.20, and \$80.92. By act of the Colorado legislature, February 21, the following oath of allegiance was prescribed for all teachers in the State:

"I solemnly swear or affirm that I will support the constitution of the State of Colorado and of the United States of America and the laws of the State of Colorado and of the United States, and will teach, by precept and example, respect for the flags of the United States and of the State of Colorado, reverence for law and order and undivided allegiance to the government of one country, the United States of America." Another act passed in the same legislative session required the teaching of the history of Colorado in the public schools.

CHARITIES AND CORRECTIONS. The State institutions are as follows: State Industrial School for Girls, Morrison; State Reformatory, Buena Vista; State Home for Dependent and Neglected Children, Denver; State Home and

Training School for Mental Defectives, Ridge and Grand Junction; State Industrial School for Boys, Golden; State Penitentiary, Canon City; State Hospital (for Insane), Pueblo; Soldiers' and Sailors' Home, Monte Vista; Industrial Workshop for the Blind, Denver.

LEGISLATION. The 23rd session of the General Assembly of the State of Colorado was held, January 5 to April 5. The following are a few of the more important measures passed: The Assembly decided to refer to the electors at the next general election an amendment to the constitution empowering the Assembly to prohibit by law the right and power of aliens ineligible to American citizenship to acquire, inherit, possess, enjoy, and dispose of property real and personal. The other constitutional amendments to be referred to the electors pertained to the terms of office and salary of county officers; the placing of certain educational institutions directly under the control of the State; the limitation of the tax rate on property for State purposes to a maximum of 4 mills; the conditions under which State loans might be contracted; and the term of office of State officials. The other measures included: Various amendments of existing laws in respect to corporations; definition of the powers and duties of the institutions under the State board of corrections and provisions in respect to the management of such institutions and the government and discipline of their inmates; an act regulating the practice of professional engineering and land surveying and creating a State board of examiners for these professions; various amendments of the game and fish laws and acts creating the game refuges of Denver Mountain Parks, Pikes Peak Game Preserve, Spanish Peaks Game Preserve, and the Colorado Antelope Refuge; various measures pertaining to the improvement of existing highway regulations; an inheritance tax measure imposing a tax on transfers of property by inheritance, the rates being as follows: Estates not over \$50,000 passing to wife, husband or lineal heirs, 2 per cent; between \$50,000 and \$100,000, 3 per cent; between \$100,000 and \$150,000, 4 per cent; \$150,000-\$250,000, 5 per cent; \$250,000-\$500,000, 6 per cent; over \$500,000, 7 per cent; the rates increasing with distance of kinship to 16 per cent on estates over \$500,000; various amendments of insurance legislation; measures amending and amplifying existing legislation on the subjects of irrigation, mining the National Guard, public

lands, etc.; and the act in respect to the oath of allegiance for teachers as noted above.

OFFICERS. Governor, Oliver H. Shoup; Lieutenant-Governor, Earl Cooley; Secretary of State, Carl S. Milliken; Treasurer, Arthur M. Stong; Attorney-General, Victor E. Keyes; Auditor, Harry E. Mulnix; Superintendent of Public Instruction, Katherine L. Craig.

JUDICIARY. Supreme Court: Chief Justice, Tully Scott; Associate Justices: James H. Teller, Martin S. Bailey, Geo. W. Allen, Haslett P. Burke, Greeley W. Whitford, John H. Denison.

COLORADO, UNIVERSITY OF. A co-educational state institution of the higher education at Boulder, Colo.; founded in 1876. The enrollment for the fall of 1921 was 2459 and the faculty numbered about 250. The library contained 132,459 volumes. The income was about \$750,000. The Macky Auditorium was completed and work on the new Liberal Arts building and the gymnasium was begun. President, George Norlin, Ph.D.

COLORED METHODISTS. See **METHODISTS, COLORED.**

COLT, SAMUEL POMEROY. Lawyer, died, August 13. He was born at Paterson, N. J., Jan. 10, 1852; studied at the Massachusetts Institute of Technology; and afterwards studied law at Columbia; and was admitted to the New York bar in 1876. He practiced his profession in Rhode Island, 1877-87, and founded there the Industrial Trust company of which he was president, 1887-1908, becoming after the latter date chairman of the board. He was president of the National India Rubber company, and of the United States Rubber company, and an officer or director in about forty other corporations. After serving on the governor's staff and as a member of the State legislature, he became assistant-attorney-general, 1879-81, and attorney-general, 1882-85, of Rhode Island.

COLUMBIA, UNIVERSITY OF. A non-sectarian institution of learning, whose principal buildings are at Morningside Heights, New York City. It consists of Columbia College (undergraduate men's college of Liberal Arts); the College of Physicians and Surgeons; the Schools of Mines, Engineering and Chemistry; the School of Architecture; the School of Journalism; the School of Business; the School of Dentistry; a non-professional Graduate Faculties of Political Science, Philosophy, and Pure Science; Barnard College (an undergraduate college for women); Teacher's College, including the faculties of Education and Practical Arts; and the New York College of Pharmacy. There is also a numerously attended summer school which begins immediately after July 4 and there is a thorough system of extension teaching.

The total number of students receiving instruction from the University down to November, 1921, including those in the summer session of that year was 26,006 (allowing for duplicates). There were registered for the regular session of 1921-22, 2633 undergraduates and 7160 graduate and professional students. In the summer session there were 11,809 students and in the university extension courses there were 6845. The attendance at the larger graduate courses and special schools was as follows: Teacher's College, 1781; Graduate Faculties, 1301; Business School, 376; Law, 643; Medicine, 366; Pharmacy, 583; Mines, Engineering, and Chemistry, 201; Journalism, 138.

The university's officers of instruction numbered 950; the total including other instructors in Teacher's College, the College of Pharmacy, the university extension courses, and the summer session, was 1593. The library contained 761,000 bound volumes.

The total gifts to the several corporations included in the University from 1890 down to the autumn of 1921 were \$42,259,284. In the year 1920-21 the University received \$1,485,643; Barnard, \$529,416; Teacher's College, \$175,231. One of the most important features of the year was the progress made in the development of the Medical School. An agreement was formed with the Presbyterian Hospital, February 7, which was to go into effect as soon as the University had raised a fund of not less than \$3,000,000 for the construction of the new buildings of the Medical School. Provision was made for the acquisition of this amount by May 12 and a lot at Washington Heights was donated for the joint use of the Medical School and the Presbyterian Hospital. Thus the project which had been outlined in 1903 was in a fair way to completion. Institutes of educational research, cancer research, and public health were established. The following deaths of members of the faculty occurred in 1921: Frederick R. Keller, instructor in electrical engineering, aged 35 yrs., March 17; Edward R. Smith, former reference librarian of the Avery Library, aged 67 yrs., March 21; Dr. Arthur P. Coll, instructor in laryngology and otology, aged 57 yrs., August 10; Dr. Austin W. Hollis, professor of clinical medicine, aged 52 yrs., November 6.

The stadium site, on which the University had an option until Dec. 31, 1921, was saved to the University by the \$700,000 gift of Mr. George F. Baker, Chairman of the Board of Directors of the First National Bank of the City of New York. Ground was broken for the new Faculty Club building, to be constructed on the corner of Morningside Drive and 117th Street at the extreme easterly edge of the University campus. Its cost was placed at approximately \$250,000, and its completion was expected in the course of the college year, 1921-22. President, Nicholas Murray Butler, Ph.D., L.D.

COMBES, JUSTIN LOUIS EMILE. Former Prime Minister of France, died at Pons, May 24. He was born at Roquecourbe, France, in 1833 and studied medicine and began practice as a country doctor in the town of Pons. He was drawn into political life through his interest in public hygiene and was elected, first, mayor of Pons (1875), then a member of the General Council of the department (1879), and finally senator in 1885, holding the latter office till 1914. He was a leader of the Radical Republican party and succeeded Waldeck-Rousseau as Prime Minister taking also the portfolio of the Interior. His ministry is notable for the rigorous enforcement of the law against the religious orders. A hater of clericalism and a deadly opponent of the Roman Catholic Church he carried out as Prime Minister the policy of separation of Church and State with a relentlessness that aroused the intense hostility of the conservative element.

COMETS. See **ASTRONOMY.**

COMMERCE. For foreign trade. See **UNITED STATES** and articles on foreign countries.

COMMISSION MANAGER PLAN. See **MUNICIPAL GOVERNMENT.**

COMMUNITY MUSIC. See *Music, Community Music*.

COMMUNITY SERVICE. An organization, established in 1918 to continue in peace times the work of the War Camp Community Service. Its purpose is to meet the demand for the opportunity of self-expression which leisure-time movement affords, to provide a central organization for propaganda purposes, to give proper emphasis to the needs of boys and girls, men and women in their free hours, to provide and train workers, to devise new methods, to publish literature and to make available information on what is being done along this line throughout the country. It has found and trained community organizers who help local communities to organize and develop their programmes and to raise funds for their work. For its "continuation service," it maintains a staff of district representatives whose entire time is given to visiting cities undertaking Community Service programmes, advising and helping in every way possible to strengthen the work. Through its National Headquarters it studies methods and devises means of aiding recreational work throughout the country. It makes available through handbooks and other pamphlets and circulars a fund of information on community effort. Among these may be mentioned: *Community Recreation; Comrades in Play; Layout and Equipment of Playgrounds; Community Music; Rural and Small Community Recreation; Summer Camps—Municipal and Industrial; Games and Play for School Morale*. During the year, with the help of a special supervisor of colored work and with trained colored workers, it made a special effort to aid the colored people in organizing their own programmes. In coöperation with the Red Cross, American Legion, and other organisations, entertainment was provided for service men stationed at government hospitals. Its efforts were also directed toward uniting both native and foreign-born through participation in recreation, for the building up of a better citizenship. National Headquarters of the movement are 1 Madison Avenue, New York City. Joseph Lee is president, Raymond B. Foedick, vice-president, Myron T. Herrick, treasurer, and H. S. Braucher, secretary.

COMORO ISLANDS. See *MAYOTTE* and the *COMORO ISLANDS*.

CONCHA, MALAQUIAS. See *NECROLOGY*.

CONCILIATION, INDUSTRIAL. See *LABOR ARBITRATION* and *CONCILIATION*.

CONFERENCE ON THE LIMITATION OF ARMAMENTS. See *NAVAL PROGRESS*.

CONGO, BELGIAN. A colony of Central Africa belonging to Belgium, formerly the Congo Free State. Area and population estimates vary. The area is placed at from 909,654 to 913,127 square miles. The population estimates vary from 9,000,000 to 15,500,000. An official estimate has placed the number at about 11,000,000. The chief racial element is Bantu. The European population was estimated in January, 1920, at 6971 of whom 3588 were Belgians and the rest divided among English, Portuguese, Italians, Americans, Dutch, French, Greeks, and a smaller number each of Russians, Swedes, Swiss, Danish, Norwegians, Spaniards, and Luxemburgers. The leading cities are Boma, the capital, Matadi, Banana, Leopoldville, Stanley Pool, and Elisabethville.

PRODUCTION. The chief products are rubber,

palm nuts, and palm oil, copal, cocoa, ivory, coffee, rice, cotton, and tobacco; and stock-raising flourishes in the regions that are not infested by the tsetse fly. The chief minerals are gold, diamonds, and copper, which are worked, and coal, iron, tin, and manganese which have not been exploited. In 1919 gold mines employed about 8000 natives and the output was placed at 3356 kilos. The copper output in 1919 was 22,130 tons. The exports of diamonds in that year were 215,532 carats.

COMMERCE. Total imports in general trade in 1918 amounted to £2,014,301 and in special trade to £504,190; exports in general trade, £4,934,461, in special trade, £4,478,754. Palm nut exports in 1919 amounted to 34,350,030 kilos; rubber, 3,797,440 kilos; copper, 23,028,000 kilos.

FINANCE. The budget for the fiscal year 1921 showed a deficit of 84,085,834 francs. The ordinary expenses had increased by 14,573,651 francs, chiefly on account of the increased salaries, wages, and pensions and the high cost of materials and products. The budget was as follows:

	Ordinary services, France	Extra- ordinary services, France	Total, France
Expenditures.....	82,118,525	86,577,869	168,696,394
Receipts.....	67,510,635	17,099,925	84,610,560
Excess of expenditures.	14,607,890	69,477,944	84,085,834

COMMUNICATIONS. The Congo is navigable for nearly a hundred miles above its mouth, that is to Matadi, and government steamships ply on it. It becomes navigable again above Stanley Pool for about 1068 miles, that is as far as Stanley Falls. Its large tributaries are also navigable. The railway mileage, Jan. 1, 1920, was 1267, the longest lines being those from Matadi to Leopoldville; from Bukama to the frontier of Rhodesia; and from Kindu to Kongolo. The Congo railway system includes two sections of the Cape-to-Cairo railway. In 1919 the post offices numbered 49, and the telegraph lines had a mileage of 2065.

GOVERNMENT. The colony is under the minister for the colonies who is appointed by the king of the Belgians, and who acts with a colonial council of fifteen members. In the colony the king is represented by a governor-general aided by several vice-governor-generals. Governor-general in 1921, M. Maurics Lippens.

CONGO, FRENCH. See *FRENCH EQUATORIAL AFRICA*.

CONGO FREE STATE. See *CONGO, BELGIAN*.

CONGREGATIONALISM. In 1921 this denomination had 5924 churches in the United States and a total membership of 819,225, as compared with 5959 churches and membership of 808,266 in the previous year. There were 5665 ministers, of whom 2220 were without charges. Sunday school pupils numbered 743,632. There were 2691 young people's organizations with membership of 107,522, and 1472 men's and boys' organizations with enrollment of 94,336. These figures show marked increases over those of the previous year. Contributions toward benevolence in 1920 amounted to \$6,188,728 or an increase of \$2,431,742 over 1919. Home expenses for 1919 were \$12,195,872, while in 1920 they were reported as being \$15,044,684. Salaries paid in 1920 amounted to \$6,490,691, or an average of \$1600 per pastor. Property of the

denomination was valued at \$112,020,676; invested funds were \$12,158,991, and debts, \$4,080,443. The national missionary societies of the denomination number eleven, as follows: American Board of Commissioners for Foreign Missions, the American Missionary Association, the Congregational Home Missionary Society, the Congregational Church Building Society, the Congregational Sunday School Extension Society, the Congregational Education Society, the Congregational Publishing Society, the Congregational Board of Ministerial Relief, the Annuity Fund for Congregational Ministers, the Woman's Boards of Missions, which has headquarters at Boston, Chicago, and San Francisco, and the Congregational Woman's Home Missionary Federation.

In 1920 the American Board of Commissioners had 19 missions in 9 great areas. Foreign workers numbered 724 and native workers 4832 in the 1244 schools of all types maintained; there were 58,620 pupils. Receipts of the board were the greatest in its history, and totaled \$1,650,000. Mission work was conducted under great hardship in Turkey. The progress made, particularly in India and China, was gratifying. The American Missionary Association carries on work similar to the American Board of Commissioners among the Negroes, Hawaiian Islands, Indians, Porto Ricans, and Asiatics and Latin Americans in America. It provides opportunity for normal, theological, college, academic, and grade teaching training at 6 chartered institutions, 6 theological seminaries, 6 colleges, and 26 secondary and elementary institutions. The pupils in 1920 numbered 11,317. It maintained 224 churches with membership of 15,736. Receipts for the year 1920 amounted to \$698,819.70. Work of the Home Missionary Society was carried on in 28 States by 1437 missionaries. They cared for 1846 churches, 19 of which were added in 1920. Services were conducted in 22 foreign languages by 300 of this total. Receipts for the year amounted to \$756,552.06. The Church Building Society reported receipts of \$501,144.81 in 1920, of which church grants and loans were made amounting to \$506,527. The Board of Ministerial Relief paid in grants \$105,265.68 to needy ministers and families of deceased ministers. Its receipts during the year were \$139,359.26. The three regional Woman's Boards of Missions employed a total of 244 missionaries and numerous native workers. Its educational work includes normal and kindergarten training and medical work. It supports numerous colleges, boarding and elementary schools and hospitals. Receipts in 1920 were \$518,553.

Through its National Council, the denomination assists in maintaining 12 theological seminaries, chief of which is the Hartford (Conn.) Theological Seminary; there are also 40 colleges which it assists. The Pilgrim Memorial Fund inaugurated in 1917 as a feature of the celebration of the Tercentenary of the landing of the Pilgrims, reported receipts in 1920 of \$28,775.85. The administration of the church is exercised by the National Council with headquarters at 289 Fourth Avenue, New York. Officers in 1921 were Rev. Henry C. King, moderator; Rev. Robert A. Hume, and Rev. William N. DeBerry, assistant moderators; Rev. Edward D. Eaton, secretary; and Frank F. Moore, treasurer.

International statistics show in Great Britain,

including Wales, Scotland, Ireland, and the Channel Islands, there were 4984 churches and 493,868 members in 1919; in Australia complete, 958 churches and 41,560 members; in Canada, 164 churches, and 13,210 members; in China, 4 churches and 676 members; in India, 5 churches, and 7494 members; in South Africa, 292 churches and 20,972 members; and in Japan, 157 churches, with 24,060 members.

CONGREGATIONAL METHODISTS. A group of ministers of the Methodist Episcopal Church, South, who had considerable objection to certain features of the episcopacy and itineracy of that church, founded this denomination in 1852 in Georgia. It was their purpose to obtain a more democratic form of church government. The doctrine of Methodism was adhered to strictly at its first conference. It was, however, modified by a certain degree of connectionalism. The movement extended in a few years to the neighboring States of Alabama, Florida, and Mississippi and, at the present time, churches are to be found in most of the southern States and some of the northern States. In 1887 nearly one-third of its churches joined the Congregationalists and apparently through disorganization the denomination has suffered heavy losses within the past decade. After 1906 it lost about 25 per cent of its members. Its missionary work has been confined to India, and many of the churches in this country have been aided financially. The latest statistics are of 1919; they show 198 churches with 220 ministers and 10,969 church members and probationers. Sunday schools numbered 182, with 1146 officers and teachers, and 8785 pupils. The *Messenger* is the only publication of the denominations, issued semi-monthly at Ellisville, Miss.

CONGRESS. See UNITED STATES, and LABOR LEGISLATION.

CONNECTICUT. POPULATION. According to the report of the census of 1920, there were 1,380,631 residents in the State, Jan. 1, 1920, as compared with 1,114,756 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	74,000	3,848,000	\$ 3,463,000
	1920	74,000	2,960,000	4,144,000
Oats.....	1921	11,000	330,000	198,000
	1920	11,000	330,000	248,000
Rye.....	1921	5,000	95,000	142,000
	1920	5,000	90,000	157,000
Tobacco.....	1921	31,000	45,074,000	18,480,000
	1920	30,000	44,400,000	15,540,000
Hay.....	1921	329,000	426,000	10,986,000
	1920	329,000	393,000	11,700,000
Potatoes.....	1921	23,000	2,369,000	3,554,000
	1920	24,000	2,760,000	4,140,000

¹ Pounds.

² Tons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Connecticut showed a consistent increase at the census of 1919, as compared with that for 1914. In the order of their importance from a percentage standpoint, the increases for the several items ranked as follows: Value added by manufacture, 175.6 per cent; wages, 158 per cent; value of products, 155.7 per cent; salaries, 145.4 per cent;

cost of materials, 138.1 per cent; capital, 116.7 per cent; number of salaried employees, 67.3 per cent; primary horse-power, 41.8 per cent; number of wage earners, 29.6 per cent; proprietors and firm members, 25.6 per cent; and number of establishments, 18.9 per cent. The capital invested, as reported in 1919, showed a gain of \$723,706,000, or 116.7 per cent, over that in 1914. The average capital per establishment was approximately \$276,000 in 1919 and \$151,000 in 1914. The cost of materials used in 1919 showed an increase over that for 1914 of \$398,331,000, or 138.1 per cent. The average cost of materials per establishment in 1919 was approximately \$141,000, and in 1914 \$70,000. The value of products in 1919 showed an increase over that in 1914 of \$849,521,000, or 155.7 per cent. The average per establishment in 1919 was approximately \$286,000 and in 1914 \$133,000. The value added by manufacture in 1919 showed an increase over that in 1914 of \$451,190,000, or 175.6 per cent. The value added by manufacture in 1919 formed 50.8 per cent of the total value of products and in 1914, 47.1 per cent. In 1919, as compared with 1914, the number of salaried employees showed an increase of 16,908, or 67.3 per cent, while the average number of wage earners increased 66,938, or 29.6 per cent. A comparative summary for the State for 1914 and 1919 follows:

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	4,878	4,104	18.9
Persons engaged in manufactures.....	339,144	254,499	33.3
Proprietors and firm members.....	3,922	3,123	25.6
Salaried employees.....	42,020	25,112	67.3
Wage earners (average number).....	293,202	226,264	29.6
Primary horsepower.....	643,732	453,812	41.8
Capital.....	\$1,343,900,000	\$620,194,000	116.7
Services.....	410,188,000	160,731,000	155.2
Salaries.....	87,139,000	35,511,000	145.4
Wages.....	323,049,000	125,220,000	158.0
Materials.....	686,842,000	288,511,000	138.1
Value of products.....	1,394,993,000	545,482,000	155.7
Value added by manufacture (value of products less cost of materials).....	708,151,000	256,961,000	175.6

TRANSPORTATION. The mileage of steam railways remained unchanged in 1921, but there was a loss of 60 miles in the matter of the electric railways because of the abandonment of service on the Shore Line Electric Railway on that part of its line extending from New Haven to Chester. Late in 1921 the New York, New Haven & Hartford Railroad Co., began a trial of gasoline-driven, flanged-wheeled buses on one or more of its branch lines. The construction of trunk line highways continued through the year, the most noteworthy work being the completion of a military highway between Hartford and New London. This was completed on Dec. 1, 1921, and shortens the distance between the two cities for motor traffic by 44 miles.

FINANCE. The net debt of the State on June 30, 1921, was \$4,627,742.52 and its receipts for the fiscal year ending on that date amounted to \$15,090,167.85.

EDUCATION. According to the school census for 1920 there were in that year 345,382 children between the ages of 4 and 16 years. Figures for 1921 were not available on Jan. 1, 1922, though partial reports showed a growth in the smaller towns and a considerable decrease in the cities.

POLITICS AND GOVERNMENT. In the legislature of 1921 there were 32 Republicans and 3 Democrats in the Senate and, in the House, 248 Republicans, 13 Democrats, and 1 Independent. The Congressional delegation is solidly Republican, the senators being Frank B. Brandegee of New London and George P. McLean of Simsbury; the members of the House are, taking the districts in their numerical order, E. Hart Fenn of Wethersfield; Richard P. Freeman of New London; John Q. Tilson of New Haven; Schuyler Merritt of Stamford, and James P. Glynn of Winsted.

OFFICERS. Governor, Everett J. Lake; Lieutenant-Governor, Charles A. Templeton; Secretary of State, Donald J. Warner; Treasurer, G. Harold Gilpatrick; Comptroller, Harvey P. Bissell, Attorney-General, Frank E. Healy.

JUDICIARY. Supreme Court: Chief Justice, George W. Wheeler; associated justices, John K. Beach, Edwin B. Gager, Howard J. Curtis, Lucien F. Burpee.

CONNOLLY, MAURICE. Former Congressman from Iowa. He was born at Dubuque, Iowa, in 1877; graduated at Cornell in 1897; and studied afterwards in England and Germany. After 1904 he was vice-president of the Dubuque Fire and Marine Insurance company. In 1913-15 he was a member of the Sixty-third Congress. He was a delegate to the Democratic National Convention

at St. Louis, 1916, serving on the resolutions committee.

CONSTRUCTION COST INDEX. See MUNICIPAL GOVERNMENT.

CONSUMPTION. See TUBERCULOSIS.

CONVERSE, EDMUND COGSWELL. See NE-CROLOGY.

CO-OPERATION IN UNITED STATES. The following information as to the general movement in the United States was supplied by Mr. H. Rattaport of the Coöperative League of America: Four tendencies were at work in the development of Coöperation during 1921. (1) The local societies continued to federate into larger groups for purposes of educational work. District Leagues were formed in eight or nine States, and many more societies joined the Coöperative League of America, the national coöperative federation, which in 1921 now had a membership of 350 societies. (2) At the same time the policy of coöperative centralization came to grief. All but one of the coöperatives which were organized on the chain-store plan went out of business with heavy losses. The coöperatives abandoned the centralized chain-store idea, and looked to the strong independent local society as the basis for

the development of the movement in this country. (3) Half a dozen large spurious societies calling themselves cooperative, though in fact nothing but stock-selling schemes, became bankrupt, with losses of at least fifteen million dollars. This was partly the result of the educational work carried on by cooperatives, which has brought about a better understanding of the movement. (4) The labor movement drifted steadily towards coöperation. The Illinois miners during November and December supplied their striking fellow-workers in Kansas with \$200,000 worth of foodstuffs, through the Central States Coöperative Wholesale Society of East St. Louis, Ill. The dairy workers of Minneapolis and St. Paul helped to organize a consumers coöperative creamery in which the consuming public furnished most of the capital. This creamery did a business at the rate of \$1,200,000 a year. During the milk strike in Cleveland, in November and December, the dairy workers followed the example of the Minneapolis workers, and organized a similar coöperative.

Workers Colleges conducted by trades unions in nine of the principal cities were giving courses on coöperation. In spite of the general business depression, the coöperatives more than held their own. The membership and the amount of business done continued to grow.

STATE LEGISLATION. In Arizona an act was passed providing for coöperative marketing, organizations with or without capital stock, and for their regulation, and providing special remedies for breach of growers' contracts and penalties for false statements regarding such associations. In Arkansas an act was passed for the formation and carrying out of coöperative associations. Georgia passed a measure to promote intelligent marketing of agricultural products. In Idaho a coöperative marketing act was passed providing for the organization, management, and coöperation of agricultural non-profit coöperative associations, regulating market contracts, fixing

marketing of farm products. Texas provided for the organization of purely coöperative marketing associations. In Wisconsin the law regulating coöperative associations was amended and the organization of foreign coöperatives in the State was regulated. See **INTERNATIONAL COÖPERATION.**

COPPER. The smelter production of copper in 1921 from ore mined in the United States, as shown by the actual production for the first eleven months and by estimates made by smelting companies for December, was about 461,000,000 pounds, according to the United States Geological Survey. The refinery production as similarly shown was about 601,000,000 pounds from domestic material and about 320,000,000 pounds from foreign material. According to the records of the Department of Commerce the total imports of copper for the first eleven months of the year in ore, concentrates, matte, blister, and refined copper were about 318,000,000 pounds, of which about 68,000,000 pounds were refined copper and 157,000,000 pounds were blister copper. The exports for the first eleven months totaled about 587,000,000 pounds, of which about 538,000,000 pounds were new refined copper and 29,000,000 pounds were manufactured—wire, rods, pipes, tubes, sheets, etc. The total new supply of primary refined copper for the year was about 989,000,000 pounds, which includes refined copper produced from foreign and domestic material as well as imported refined copper. The stocks of refined copper in the hands of domestic refineries on Dec. 31, 1921, excluding those in transit, as estimated by the refining companies, were about 496,000,000 pounds. The stocks of blister copper on Dec. 31, 1921, including material in process, in the hands of smelters, in transit to refineries, and at refineries were estimated by refining and smelting companies at about 297,000,000 pounds.

The quantity of primary refined copper withdrawn on domestic account during the year was about 572,000,000 pounds, calculated as follows:

	1920	1921
Refinery production from domestic sources.....	1,182,000,000	601,000,000
Refinery production from foreign sources.....	344,000,000	320,000,000
Imports of refined copper.....	109,000,000	75,000,000
Stocks of new refined copper January 1.....	631,000,000	659,000,000
Total available supply.....	2,266,000,000	1,655,000,000
Exports (exclusive of manufactured copper).....	553,000,000	587,000,000
Stocks on hand December 31.....	659,000,000	496,000,000
	1,212,000,000	1,083,000,000
Total withdrawn on domestic account.....	1,054,000,000	572,000,000

license fees, etc. Iowa authorized the collective production and marketing of produce by coöperative associations. In Minnesota certain powers and duties were imposed upon the commissioner of agriculture in regard to assisting and advising coöperative associations organized under the law of the State, engaged in buying, selling, and marketing farm products, etc. In Missouri an act authorized and provided for the incorporation of commodity associations to be owned, operated, and managed by stockholders and members engaged in growing or producing agricultural commodities. Nebraska provided for the organization and incorporation of coöperative companies and associations. In North Carolina an act was passed to encourage the coöperative

The domestic imports and exports of primary refined copper in December, 1921, were assumed to be equivalent to the average monthly imports for the first eleven months. Disregarding the imports and exports for December the quantity of primary copper withdrawn on domestic account would amount to about 614,000,000 pounds. The tables on page 171 issued by the Geological Survey give statistics of recent years:

In 1921 the productive capacity of the copper mines of the United States was estimated at about 2,000,000,000 lbs. per annum, while the capacity of the refineries was approximately 2,500,000,000, the excess capacity being designed to handle copper from foreign mines. The maximum consumption of the United States would be in the

	1917	1918	1919	1920
Production of copper:				
Smelter output..... pounds...	1,886,180,721	1,906,533,595	1,286,419,329	1,209,061,040
Mine production..... do.....	1,895,434,349	1,910,022,841	(†)	(†)
Refinery production of new copper:				
Electrolytic..... do.....	1,452,744,593	1,560,327,422	1,233,994,324	1,010,240,867
Lake..... do.....	268,506,091	231,096,158	177,594,135	153,483,952
Casting and pig..... do.....	182,293,487	91,450,611	21,897,336	18,698,421
Total domestic..... do.....	1,873,546,171	1,882,874,191	1,433,485,795	1,182,423,240
Total domestic and foreign..... do.....	2,428,546,171	2,432,385,290	1,805,306,801	1,634,908,644
Total new and old copper..... do.....	3,195,000,000	3,138,000,000	2,380,000,000	(†)
Total ore produced..... short tons.....	58,514,325	62,304,767	(†)	(†)
Copper ore produced..... do.....	58,482,694	62,289,069	(†)	(†)
Average yield of copper..... per cent.....	1.60	1.51	(†)	(†)
Average price per pound..... cents.....	27.3	24.7	18.6	18.4
Imports *..... pounds.....	556,420,297	575,805,115	429,387,594	485,670,691
Exports of metallic copper †..... do.....	1,125,647,336	744,243,481	515,595,019	623,158,489
Consumption:				
Total new copper..... do.....	1,894,829,715	1,661,669,576	914,471,572	1,053,838,558
Total new and old copper..... do.....	2,162,000,000	2,367,000,000	1,489,000,000	(†)
World's production..... do.....	3,137,719,000	(†)	(†)	(†)
Value of production in the United States.....	\$514,911,000	\$471,408,000	\$239,274,000	\$222,467,000

* Copper in unmanufactured form.

† Total exports of copper, exclusive of ore, concentrates, and composition metal.

‡ Figures not yet available.

PRINCIPAL FEATURES OF THE COPPER INDUSTRY, 1907-20

Year	Refined copper, primary, pounds	Secondary copper, pounds	Smelter production, domestic ores, pounds	Imports, in unmanufactured form, pounds	Exports of metallic copper, pounds	Domestic consumption (new copper) pounds	Average yearly price per pound	World's production pounds
1907	1,032,500,000		869,000,000	253,000,000	509,000,000	488,000,000	\$0.200	1,595,553,000
1908	1,138,000,000		942,500,000	219,000,000	662,000,000	480,000,000	.132	1,640,200,000
1909	1,391,000,000		1,093,000,000	322,000,000	683,000,000	689,000,000	.130	1,824,476,000
1910	1,422,000,000		1,080,000,000	344,000,000	708,000,000	732,000,000	.127	1,892,352,000
1911	1,434,000,000	214,000,000	1,097,000,000	335,000,000	786,500,000	682,000,000	.125	1,961,516,000
1912	1,568,100,000	275,000,000	1,243,000,000	410,000,000	775,000,000	776,000,000	.165	2,205,012,600
1913	1,615,100,000	273,000,000	1,224,000,000	409,000,000	926,000,000	812,000,000	.155	2,181,253,000
1914	1,533,800,000	256,000,000	1,150,000,000	306,000,000	840,000,000	702,000,000	.133	2,054,090,000
1915	1,634,200,000	392,000,000	1,388,000,000	316,000,000	682,000,000	1,137,000,000	.175	2,377,375,000
1916	2,256,400,000	700,000,000	1,928,000,000	462,000,000	784,000,000	1,479,000,000	.246	2,992,046,000
1917	2,428,500,000	767,000,000	1,886,000,000	556,000,000	1,126,000,000	1,395,000,000	.273	3,137,719,000
1918	2,432,400,000	705,000,000	1,908,500,000	576,000,000	744,000,000	1,662,000,000	.247	(*)
1919	1,805,300,000	574,000,000	1,286,000,000	429,000,000	516,000,000	914,000,000	.186	(*)
1920	1,634,900,000	(*)	1,209,000,000	486,000,000	623,000,000	1,054,000,000	.184	(*)

* Figures not available.

neighborhood of 1,400,000,000 lbs., so the surplus production must be absorbed by exportation. Considering the actual figures for 1921 it will appear that domestic smelters produced 461,000,000 tons, refineries, 601,000,000 tons from domestic and 320,000,000 tons from foreign ores, or a total of 921,000,000 tons of new copper; and there was exported approximately 650,000,000 tons.

A very natural division of the copper production of the United States would be into three epochs, namely, before the war, during the war, i. e., from 1914 to the end of 1918, and the postwar period. For the three years 1911-13 the mine production of copper was as follows:

Pounds	
1911..... 1,083,856,371	Average, 1,183,787,571 lbs.
1912..... 1,241,770,508	
1913..... 1,225,735,834	

During the war, worked to the utmost of capacity, the production was as follows:

Pounds	
1915..... 1,423,698,160	Average, 1,806,732,815 lbs.
1916..... 1,942,776,309	
1917..... 1,922,555,903	
1918..... 1,937,900,887	

Subsequent to the war, the production is given below, but in 1921 came the turn and for the last nine months of the year, production was discontinued by all but a few mines in the United States-

Pounds	
1919..... 1,209,614,818	Average, 985,152,163 lbs.
1920..... 1,270,841,670	
1921(approximately) 475,000,000	

In addition to mine production imports of copper into the United States, mainly in ore, matte, and crude metal, averaged about 400,000,000 lbs. per annum prior to the war. Since the war the importation has been as follows: 1919, 429,387,594 lbs.; 1920, 485,670,691 lbs.; 1921 (approximately), 347,500,000 lbs.

The production of American mines, plus imports, gives substantially the total supply. The disposition of this is shown by deliveries of copper, foreign and domestic, which during the four years previous to 1915 and the three years subsequent to 1918 is given below, these statistics along with others being from the annual review in the *Engineering and Mining Journal* (New York):

DELIVERIES OF FOREIGN AND DOMESTIC COPPER.

Year	Foreign, pounds	Domestic, pounds	Total, pounds
1911.....	778,902,233	726,700,981	1,505,603,214
1912.....	766,356,452	825,064,841	1,591,461,293
1913.....	887,596,373	793,394,449	1,680,992,822
1914.....	767,682,491	722,761,784	1,490,444,275
Totals.....	3,200,579,549	3,067,922,055	6,268,501,604
Average.....			1,567,125,401
1919.....	366,331,137	1,224,503,758	1,590,834,895
1920.....	466,341,570	1,399,653,122	1,225,000,000
1921.....	560,000,000	665,000,000	1,225,000
Totals.....	1,392,672,707	3,289,156,880	4,681,829,587
Average.....			1,560,609,863

The range of prices, monthly averages, and the averages for the years are given on page 172.

PRICE RANGE AND AVERAGE COPPER PRICE	PRICE		
	High, cents	Low, cents	Average cents
1911.....	13.552	11.989	12.376
1912.....	17.508	14.084	16.341
1913.....	16.488	14.192	15.269
1914.....	14.491	11.739	13.602
1919.....	22.319	14.856	18.691
1920.....	18.918	13.188	17.456
1921.....	13.555	11.634	12.502

In the early months of 1921 an increased surplus of copper was piled up which with the growing depression and the high costs of production led many of the big mines to suspend production entirely in March and April and others to operate, at half time. In short there was slack demand low selling price, and high operating costs so that a shut down was inevitable. Furthermore, there was a diminished export demand, not only on account of similar or worse depression in Europe but on account of the secondary copper that was being reclaimed from European battlefields and munition stores. The American companies resolutely forced the situation by shutting down mines and smelters and refineries and suspending dividends. At the end of the year conditions within the industry were good for the change whenever it might occur. In South America and Africa there were important developments under way which are discussed along with other practice under METALLURGY, section *Copper*.

The remainder, namely, 247, consisted of language books registered for ad interim copyright. The chief classes in their order of numerical importance of the remaining registrations were: Periodicals; musical compositions; prints and pictorial illustrations; dramatic or dramatico-musical compositions; photographs; works of art, models; or designs; maps; motion picture photoplays; drawings or plastic works of a scientific or technical character; motion pictures not photoplays; lectures, sermons, and addresses. The renewals numbered 2206 as compared with 2112 the year before. The fees paid during the year amounted to \$134,516. The total number of articles deposited during the period from July 1, 1897, to June 30, 1921, was 44,661,213.

The act of Dec. 18, 1919, became effective March 3, 1921. Under its terms works published abroad in the English language may be deposited in the copyright office for registration within 60 days after first publication to secure an ad interim copyright in the United States for four days from the date of receipt of the deposited copy and registration as provided by the act. On June 4, 1921, the act passed by the Canadian Parliament was approved, amending and consolidating the law relating to copyright. According to the Register's report its provisions would seriously embarrass publishers of books and periodicals in the United States and it was therefore recommended that steps be taken to secure more satisfactory

PRODUCTION, STOCKS, IMPORTS, EXPORTS, AND CONSUMPTION OF COPPER, 1919-21
Engineering and Mining Journal (New York)

	1919	In Pounds 1920	1921
Smelter output from domestic ores.....	1,286,000,000	1,209,000,000	461,000,000
Refinery production of new copper from domestic and foreign ores.....	1,768,000,000	1,635,000,000	921,000,000
Stocks at the end of the year, at smelters and refineries.....	904,000,000	1,125,000,000	1,783,000,000
Imports.....	429,387,594	486,000,000	68,000,000
Exports.....	516,627,775	623,000,000	538,000,000
Apparent domestic consumption.....	877,000,000	1,053,000,000	614,000,000

¹ Amount contains 496,000,000 lb. of refined copper and 297,000,000 lb. of blister copper.

² Total for eleven months ending Nov. 30, 1921, from records of the Bureau of Foreign and Domestic Commerce.

³ Estimated.

MONTHLY AVERAGE PRICE OF COPPER

Month	<i>Engineering and Mining Journal (New York)</i>					
	New York		London		Electrolytic	
	1920	1921	1920	1921	1920	1921
Jan.....	18.918	12.597	118.095	70.964	123.238	79.119
Feb.....	18.569	12.556	120.188	70.925	126.950	75.925
Mar.....	18.331	11.976	109.533	67.565	118.348	71.190
April.....	18.660	12.438	103.025	69.381	111.500	71.786
May.....	18.484	12.742	96.750	73.196	109.200	74.298
June.....	18.065	12.697	87.864	71.852	101.909	75.682
July.....	18.576	12.170	90.148	71.155	106.455	75.286
Aug.....	18.346	11.634	93.935	68.614	111.143	72.705
Sept.....	18.144	11.948	96.381	67.977	111.905	72.295
Oct.....	15.934	12.673	93.327	67.327	104.905	73.476
Nov.....	14.257	13.035	84.807	66.614	94.614	74.386
Dec.....	13.188	13.555	75.702	66.706	85.905	74.525
Year.....	17.456	12.502	97.480	69.356	108.839	74.223

New York quotations, cents per lb. London, pounds sterling per long ton.

COPYRIGHT. Registrations for the fiscal year 1920-21 according to the report of the Register of Copyrights were 135,280 as compared with 126,562 for the year before. Of these, 41,245 were classed as books but included pamphlets, leaflets, and contributions to periodicals. Of this number 39,864 were printed in the United States and 1134 printed abroad in a foreign language.

copyright relations between the two countries. The chief difficulty there has been the obligation to print in the United States books and periodicals and to manufacture here lithographs and photo-engravings. The first step toward improvement of the situation was the removal of this requirement. Measures were under consideration in the course of the year for submission to Congress.

A joint resolution was presented in Congress, February 24 providing that certain motion picture films and phonograph records registered under the copyright laws be sent to the Director of the National Museum for preservation. A bill for the protection of government documents was introduced April 13, 1921. A bill to amend section I (e) of the copyright law of 1909 was introduced June 21 and referred to the Committee of Patents. This added to the section a further provision to the effect that copyright control should not extend to public performances for profit of musical compositions where such performances were made from printed or written sheets or reproducing devices issued under the authority of the copyright owner. The bill to consolidate, codify, revise, and reenact the general and permanent laws had been introduced Sept. 20, 1919, and was under consideration from time to time after that date. It passed the

House, Dec. 20, 1920, and was presented to the Senate, Dec. 23, 1920. It was reintroduced in the House, April 11, 1921, and passed May 16. It was then presented to the Senate where it was referred to the Committees on the Revision of the Laws, June 27.

CORDITE. See **CHEMISTRY, INDUSTRIAL.**

CORN. As in previous years since the outbreak of the European war, data on the world's corn production in 1921 continued to be incomplete. The International Institute of Agriculture, Rome, published provisional estimates indicating for 12 countries in the northern hemisphere a small increase in acreage over the 5-year period 1915-19, and an increase of nearly 4 per cent over the preceding year. The production reported for these countries, 3,297,860,000 bu., was slightly under their aggregate yield in 1920, but 12.6 per cent above the average for the 5 years 1915-19. Since Russia, which prior to the war produced annually from 90 to 95 million bushels, was not included in the estimates and also since by far the larger proportion of the world's crop is produced in the United States and Argentina, this increase above the 5-year period was not due, to any great extent, to recovery from war conditions.

The world's production normally amounts to about 4,000,000,000 bu., and an approximate estimate by the above-mentioned authority placed the production in 1921 at 4,097,000,000 bu. The production of various countries was estimated as follows: Italy 94,483,000 bu., Bulgaria 34,386,000 bu., Spain 28,048,000 bu., Hungary within present limits 27,140,000 bu., and the Philippines 18,108,000 bu.

According to estimates by the Department of Agriculture, the United States in 1921 produced 3,081,251,000 bu. on an area of 103,850,000 acres, or a decrease in yield of 149,281,000 bu. and an increase in area of 2,151,000 acres, as compared with the results in 1920. The average yield per acre was 29.7 bu. while in 1920 it was 31.8 and in 1919 29 bu. The average farm value on December 1 of these three years was 42.4, 67.1 and 134.4 cts. per bu. respectively. Based on these prices the total value of crop in 1921 was \$1,305,624,000 in 1920 \$2,168,768,000, and in 1919 \$3,786,516,000. As the corn crop is one of the main sources of revenue of the American farmer, the rapid and extensive decline in price since 1918 and 1919 caused much financial embarrassment. The relative position in corn culture of the different States does not change much from one year to another. In 1920 Iowa ranked first with an area of 10,300,000 acres and a production of 473,000,000 bu., and Illinois second with 8,652,000 acres and 294,168,000 bu. Nebraska ranked third in production, Missouri fourth, Indiana fifth, Texas sixth, and Ohio seventh.

For the five years 1909-13 the average annual per capita consumption of corn, including corn meal, in the United States was 28 $\frac{1}{4}$ bu., leading all countries, Austria-Hungary ranking next, with only 4 $\frac{1}{2}$ bu. In corn exports Argentina for several years has ranked first and in 1921 that country had an exportable surplus of 156,600,000 bu. The United States, during the first 7 months of 1921 exported 72,722,000 bu., the largest volume of exports since 1906, as compared with 17,761,000 bu. for the entire calendar year of 1920. Owing to a short crop through drought last year Mexico, which ordinarily grows more than enough

for its own requirements, was a buyer of corn in the United States. The principal corn-importing countries, given in the decreasing order of average imports for the 5 years 1909-13, were the United Kingdom, Germany, the Netherlands, Belgium, and France. An average of 80 to 85 per cent of the annual production of the United States is of merchantable quality.

The disease known as corn root rots continued to receive attention by the Department of Agriculture and the agricultural experiment stations and the application of measures for its control was urged. It was estimated that in 1919 the production was decreased by over 125,000,000 bu. as the result of root rots, and it was pointed out that the only known method of control was the use of seed free from the disease. To assure the use of perfect seed it was advised that each seed ear be subjected to a germination test and that only those ears of which the tested kernels produce vigorous sprouts and healthy seedlings be retained for planting. It was reported that a corn-canning plant in Michigan installed a germinator for testing seed corn for the farmers supplying the canning material, in order to reduce the losses due to the use of diseased sweet corn seed.

The European corn borer appeared during the year in northern Ohio and it was believed that the infestation came from Canada where it has spread to a considerable extent in the Province of Ontario. The quarantine against this pest was extended November 15, and as revised covered the areas of infestation in Massachusetts and New Hampshire, in eastern and western New York, in Erie Co., Pennsylvania, a strip along Lake Erie in northern Ohio, and three townships bordering on this lake in Monroe Co., Michigan.

In view of the low price of corn and the high price of coal the advisability of using corn for fuel on farms in the principal corn-growing States of the Middle West was widely discussed during the fall of 1921. It was pointed out that ear corn at 20 cts. per bushel was equal in fuel value to a ton of a fair grade of soft coal at about \$10 per ton, and corn at 28 cts. per bushel to coal at \$14 per ton. In one county in Iowa the officials were authorized to purchase corn for heating the courthouse and other county buildings. In Argentina corn is sometimes used as fuel on farms and even in power plants.

CORN DISEASES. See **BOTANY.**

CORNELL UNIVERSITY. A non-sectarian co-educational State institution of higher learning at Ithaca, N. Y.; founded in 1865. For the fall session of 1921 the enrollment was 5242 and for the summer session, 2739. There were 757 members of the faculty. The productive funds amounted to \$19,261,011 and the income was \$4,421,385. There were 655,000 volumes in the library. Connected with the university is the Medical College in New York City which had 217 students in 1921. A new laboratory of chemistry was begun, the estimated cost being \$1,500,000, the gift of George F. Baker of New York, and a new building for the department of dairy industry of the New York State College of Agriculture was begun, for which the State appropriated about \$400,000. President (inaugurated Oct. 20, 1921), Livingston Farrand.

CORTEJARENA, JOSÉ E. See **NECROLOGY.**

CORY, CHARLES BARNEY. Ornithologist, died, July 29. He was born at Boston, Mass., Jan. 31,

1857; educated at the Lawrence Scientific School, Harvard. He was associated with the Boston Society of Natural History until 1905, and from 1906, was professor and honorary curator in the Department of Zoology in the Field of Natural History, Chicago. He was an officer or member of many of the leading learned societies within his field of interest, in the United States and abroad. Besides numerous scientific papers and volumes on the subject of hypnotism and mesmerism, he wrote many volumes describing birds over a wide area of the western continent, including among others the following: *Birds of the Bahama Islands* (1880); *The Beautiful and Curious Birds of the World* (1880); *Southern Rambles: Florida* (1881); *Montezuma's Castle* (1899); *The Birds of Illinois and Wisconsin* (1909); *Mammals of Illinois and Wisconsin* (1912); *Description of Twenty-eight New Species and Subspecies of Neotropical Birds* (1913).

COST INDEX. See MUNICIPAL GOVERNMENT.

COSTA RICA. A Central American republic, lying between Nicaragua and Panama, with the Caribbean sea on the east and the Pacific ocean on the west and south. Capital, San Jose.

AREA AND POPULATION. Estimates of area vary, the closest figure apparently being 18,691 square miles. Another estimate places it at 23,000 square miles. The population, Jan. 1, 1919, was 459,423 of which the greater part were in the two provinces of San Jose and Alajuela. The country is divided into seven provinces. The population of the largest cities, according to the latest available figures, were as follows: San Jose, 38,016 or including suburbs, 51,858; Cartago, 14,398; Heredia, 9328; Alajuela, 9177; Punta Arenas, 5283. Most of the people of European descent live at or near the capital and in the towns above mentioned. There is a considerable element of colored British West Indians, numbering about 18,000, who for the most part are engaged in banana culture.

PRODUCTION. The chief occupation is agriculture, and the principal products are coffee, bananas, and forest products. The coffee production in 1920-21 was estimated at 24,000,000 pounds. The chief mineral industry is that of gold and silver mining on the Pacific slope.

COMMERCE. The following information in respect to 1920 foreign trade was supplied by the United States Bureau of Foreign and Domestic Commerce.

As in most Central American countries the commercial situation in Costa Rica can be gauged by the condition of the coffee trade. The 1920 crop amounted to 30,430,700 pounds, which was only slightly smaller than the 1919 crop, but the dull market greatly reduced the export figure. The exports from Costa Rica, about two-thirds of which were destined for the United States, increased steadily (except for the slight slump of 1915) from 22,197,000 colones in 1913 to 38,170,000 in 1919. In 1920 they dropped from the high value of 1919 to 31,119,000 colones, which, however, was nearly 7,000,000 colones greater than the previous high record. The record figure in 1919 was caused principally by the coffee boom of that year, the exports from Costa Rica of this commodity amounting to 25,104,000 colones. Carao also jumped in 1920 to more than twice its previous high export value, with exports amounting to 1,158,000 colones. Bananas, exported in 1920 to the amount of 7,271,000, did not reach the

level of 1914 or 1916, when the exports were valued at more than 10,000,000 colones.

In Costa Rica's foreign trade from 1910 to 1920 the excess of exports over imports has ranged from 2,000,000 to 22,000,000 colones; in 1920 the imports were nearly 8,000,000 colones in excess of the exports. Since a decree was issued in November, 1914, prohibiting the export of gold and silver, except as a product of the mines, this unfavorable balance of trade had an adverse effect upon exchange. The colon, worth \$0.46536, U. S. currency, at par, fell until in July, 1921, it was worth \$0.214. In June, 1921, the removal of this restriction on the exportation of gold and silver was published. Exchange is now recovering slightly and, if the promised strengthening in the price of coffee takes place, it is likely to further improve.

FINANCE. Receipts in 1920 were 17,844,186 colones; expenditures, 18,679,159 colones, both receipts and expenditures having exceeded the budget estimates. The country went on a gold basis April 2, 1921, with the repeal of the moratorium against the redemption in gold of notes issued by the banks under provision of 1920 which permitted such issues up to 50 per cent of their paid up capital. The public debt in 1920 was 69,291,796 colones of which the external debt amounted to 30,366,966. The following information in regard to the budget for 1921 was supplied by the *Pan American Union*: Legislative power, 200,000 colones; judicial power, 537,480 colones; department of government and police, 1,480,299 colones; department of promotion, 1,805,765 colones; department of foreign affairs, 177,728 colones; department of justice, 54,072 colones; department of religion, 36,000 colones; department of charity, 205,017 colones; department of public instruction, 2,476,998 colones; department of war and military police, 1,555,070 colones; navy department, 37,728 colones; department of finance and commerce, 1,860,570 colones; public-debt service, 6,025,858 colones; total, 16,452,606 colones.

DEFENSE. The total military forces including reserve and national guard were, at the latest date for which figures were available, 52,208, including an active army of 38,946. The war strength of the militia is placed at about 50,000 men, all males between the ages of eighteen and fifty being liable to military service.

GOVERNMENT. The executive power is vested in a president chosen by an electoral college, consisting of senators and deputies; legislative power in a chamber of representatives elected for four years, one-half retiring every two years. Suffrage is universal. There are six secretaries of state, appointed by the president and responsible to him. The president at the beginning of 1921 was Don Julio Acosta.

HISTORY. On March 17 the Congress voted by 24 to 17 in support of the action of the president in refusing to recognize oil concessions granted to British interests by the Tinoco government and this course was approved by the United States in a note to Great Britain, April 19. The boundary dispute with Panama resulted in the invasion of that country by a small body of Costa Rican troops in the latter part of February. The United States government notified both parties of its disapproval of this resort to force, and Panama at once agreed to accept the mediations of the United States. On March 5 Secretary of State

Hughes gave it to be understood that the United States might enforce a peaceable settlement. On March 7 both countries consented to mediation. Secretary Hughes on March 14 pointed to the fact that Panama and Costa Rica in the treaty of 1915 had agreed to submit their disputes to American mediation. The United States government now decided in favor of Costa Rica, and when Panama showed unwillingness to allow this decision, issued an ultimatum requiring compliance by May 16. Panama then appealed to South American nations to interfere and to the United States to reconsider. On August 18 the United States Secretary of State, Mr. Hughes, replied to Panama's request for delay that the United States saw no reason why Costa Rica should not assume jurisdiction without further delay in the territory which was adjudged to Costa Rica by the terms of the Loubet decision. Meanwhile Costa Rica had sent troops to occupy the region and Panama had ordered the civil authorities to evacuate before the Costa Ricans arrived. On August 24, President Porras of Panama protested against Costa Rican occupation that Panama reserved the right to occupy the territory awarded to her by the Loubet decision. The United States government had refused the protest of Panama's Foreign Minister on August 23, saying that because of the treaty relations between Panama and the United States the latter could not permit Panama to renew hostilities against Costa Rica. A commission to limit the boundary was provided for, to consist of one engineer named by Costa Rica, one by Panama, and two by the United States. On August 24, the two American representatives were named by the Chief Justice of the Supreme Court but Panama refused to name her commissioner or to recognize those appointed. The Foreign Minister of Panama, Dr. Garay, left Washington August 24 after filing a protest to the effect that the course taken by the United States showed that the rights of peoples were estimated only in proportion to the force they could command in order to make them good, and denouncing the act of the United States as a gross injustice. On September 5 Panama evacuated the territory and on September 9 the United States State Department announced that Costa Rica was in peaceful possession.

COST OF LIVING. See PRICES.

COTTON. The 1921 cotton crop of the United States was estimated by the U. S. Department of Agriculture Crop Reporting Board on Dec. 12, 1921, at 8,340,000 bales of 500 pounds gross weight. The value of the crop, exclusive of the seed, based on quotations of December 1, was about \$675,000,000. The estimated value of the crop of 1920, excluding the seed, was \$1,067,240,000. The Crop Report of the International Institute of Agriculture at Rome gave in its issue of December, 1921, an estimate of 7,973,000 bales for the crop of the United States.

This is the smallest crop since 1899, when practically the same yield was reported. Several factors influenced the reduced production. The general financial situation and the known carry over of about 6,500,000 bales of the crop of 1920 brought about concerted action for a reduction of the area planted. Reports show a reduction of nearly 50 per cent in the amount of fertilizers sold in the spring of 1921, and unfavorable weather

prevailed in many regions resulting in the lowest crop condition reported for many years. The Bureau of the Census reported ginned to Jan. 1, 1922, 7,884,272 running bales. This estimate included 123,320 round bales which are counted as half bales, 30,093 of American grown Egyptian cotton, and 3106 bales of Sea Island cotton.

The world's production of commercial cotton was estimated at 15,593,000 bales, the smallest world's crop since 1900. The bearing of this low production on the textile trade of the world is a matter of much speculation as the visible supply does not seem equal to the anticipated demand. The 1921 crop in Egypt fell much below that grown in 1920, only 653,400 bales of 500 pounds each being estimated for the year. There was considerable reduction in the area planted to cotton in Egypt and much damage done by pests, the second picking being reported as damaged to the extent of 30 to 50 per cent. The crop of India for 1921 was estimated at 2,880,000 bales of 500 pounds gross weight. The crop produced in the Laguna district of Mexico, where there was much damage due to the pink bollworm, was about 75,000 bales. The estimated crop of Brazil is 584,600 bales.

Data are not available for 1921 for a number of cotton-producing countries, but their 1920 production was: Peru, 150,000; Colombia, 6000; British West Indies, 3048; China, 1,868,000; Russia, 180,000; and other countries, 600,000 bales. The commercial cotton crop of Africa, exclusive of Egypt, was 4500 bales. The final report of the Egyptian crop for 1920 was 1,231,000 bales.

The following table shows the cotton crop of the United States for 1920, the estimated crop for 1921 and the amount reported ginned to Jan. 1, 1922:

States	Crop, 1920 500 lb. bales	Estimated Crop, 1921 500 lb. bales	Reported ginned Jan. 1, 1922 Running bales
United States.....	13,439,603	8,340,000	7,884,272
Alabama.....	662,699	635,000	584,335
Arizona.....	103,121	40,000	35,304
Arkansas.....	1,214,448	860,000	781,823
California.....	75,183	74,000	23,569
Florida.....	18,114	13,000	12,098
Georgia.....	1,415,129	840,000	817,263
Louisiana.....	387,663	295,000	281,773
Mississippi.....	895,312	870,000	811,830
Missouri.....	78,856	78,000	67,919
North Carolina.....	924,761	800,000	783,598
Oklahoma.....	1,336,298	530,000	476,279
South Carolina.....	1,623,076	760,000	770,558
Tennessee.....	325,085	340,000	295,360
Texas.....	4,345,282	2,200,000	2,117,938
Virginia.....	21,337	16,000	16,078
All other states.....	13,239	13,000	8,547

¹ Includes some grown in Lower California.

In addition to the United States crop of 13,439,603 bales of lint in 1920, there were also produced 439,637 bales of linters. There were received at oil mills for the year ending July 31, 1921, cotton seed to the amount of 4,125,063 tons, and 4,060,604 tons of cottonseed were crushed during the same period. This quantity of seed yielded 1,305,864,069 pounds of crude oil, 1,780,476 tons of cake and meal, 1,255,644 tons of hulls, besides other products.

The exports of domestic cotton and linters for the year ended July 31, 1921, were 5,724,584 running bales, a decrease of 873,763 from the amount exported in 1920. The principal shipments were: To the United Kingdom, 1,736,686; Germany, 1,281,237; France, 592,286; Italy,

508,274; other European countries, 670,279; and Japan, 619,623 bales. The exports to Great Britain were 1,332,655 bales less than in 1920 and Germany took an increase of 838,058 bales. During the same period there were imported into the United States 226,321 bales of cotton as follows: Egypt, 87,167; Peru, 22,597; China, 14,723; Mexico, 88,155; other countries, 13,679 bales.

The world's production of commercial cotton grown in 1920 was approximately 18,810,000 bales of 500 pounds each. The consumption for the year ending July 31, 1921, was about 16,170,000 bales. The approximate number of spindles active and idle throughout the world is 153,000,000. Mills in the United States consumed 4,887,893 bales of cotton during the year, a reduction of 1,531,841 bales from the number used the previous year. In November there were 15,499,127 active spindles in the cotton-growing states and 17,033,980 in all other parts of the United States. Beginning August 1, 1921, the Bureau of the Census began the collection of data as to the number of spindle-hours for cotton-spinning mills. It is thought that these data will give a more accurate method of measuring the activity of the industry.

The British Government has made a grant of £1,000,000, to the Empire Cotton Growing Corporation which was recently granted a charter. The Corporation is the outgrowth of the Empire Cotton Growing Committee, established in 1917. Its functions are to assist Agricultural Departments, provide training facilities for men engaged in their work, disseminate information regarding cotton growing, and, where necessary, assist in marketing crops. It will work in coöperation with the British Cotton Growing Association, especially in marketing. In addition to the Government grant, a voluntary contribution of 6d. per bale on all cotton used in the spinning trade of England has been agreed upon. This fund is estimated at almost £100,000 annually. A number of scholarships, valued at £200 annually, have been provided for additional training in tropical agriculture.

Through the above organizations surveys are being made of all probable sources of cotton production within the British Empire and efforts are being made to develop cotton production under British auspices in other countries. A commission, headed by A. S. Pearse, visited Brazil with a view of encouraging greater production of cotton, and a recent account reports the acquisition by an English Syndicate of a large tract of land north of São Paulo for the growing under irrigation of long staple cotton. Some progress is noted in the increased production of British grown cotton. The production in new fields has increased from 54,900 bales in 1914 to 105,800 bales in 1920.

As a means of aiding in establishing ex-soldiers in Queensland, the British Cotton Growing Association has guaranteed for 5 years a price of 18 pence per pound for all good clean cotton of good quality forwarded to Liverpool from Queensland, the limit of loss for the period not to exceed £10,000.

In Egypt the Cotton Research Board, which was founded as an emergency measure in 1919, was definitely established under the Ministry of Agriculture on Jan. 27, 1921. It will carry on research work connected with all phases of cotton production. A survey of the cotton situation in

Egypt was made by H. M. Leake of the United Provinces, India, at the request of the Ministry of Agriculture, and he recommends more extensive planting of Sakellariadis, the now prevailing variety, development of better types, establishment of local seed farms, and licenses for seed production for planting and for the introduction of new varieties. Dudgeon attributes the decline in acre yield of cotton in Egypt, which has fallen from 500 pounds per acre in 1899 to 320 pounds in 1920, to excessive cultivation of cotton in short rotations, rise of water table through increased irrigation with lack of drainage, lack of fertilizers, insect ravages, and the planting of early but low yielding varieties to escape insect depredations. With a view to maintaining the purity of types of cotton the Ministry of Agriculture in Egypt has assumed control of all cottonseed intended for planting.

In India, cotton-breeding work in progress since 1912 is said to have resulted in the isolation of a strain of cotton that yields as well as the native varieties and has a much better lint. An Advisory Central Committee has been established in India under a decree of March 31, 1921. In the Belgian Congo 250,000 francs were devoted to experiments and demonstrations in cotton production in 1920 and 1921. At some of the cotton experiment stations certain varieties of American Upland Cotton have given the best results, lint grading with American middling having been produced. Average yields of 176 pounds lint cotton per acre are reported.

In order to prevent the introduction of destructive pests the government of South Africa requires a special permit for the introduction of cottonseed into the Union from any country other than British territory in South Africa. Restrictions on the importation of unmanufactured cotton are contemplated. The British Cotton Growing Association offered a series of prizes to be competed for in 1920 and 1921, in an attempt to stimulate the growing of that crop in Rhodesia. The Chinese Cotton Mill Owners' Association, which reported a crop of 1,868,000 bales in 1920, states that about the same acreage was planted in 1921, but the condition of the crop was very unfavorable. Under the auspices of this association, a central experiment station and 16 substations for investigations on cotton production have been established. The French High Commissioner has ordered the establishment of a cotton experiment station in Syria.

Of great importance to the cotton-growing industry of the United States was the announcement late in November of the presence of the pink bollworm in five fields near Ennis, Ellis County, Texas. This county, which is immediately south of Dallas, is one of the largest producers of cotton in the State and it also contains some of the most important cotton seed farms in the South. The infestation is believed to have come from Carlsbad, New Mexico, in seed shipped in 1920 before the presence of the pink bollworm was recognized in that locality. The infested area previously reported near Hearne, Texas, is now believed to be free from the pest. This was one of the original centres of infestation but through the maintenance of noncotton zones about the infested areas since 1917 the insect appears to have been eliminated. Other infested regions are those about Trinity Bay, Pecos Valley, Great Bend, and El Paso. The El

Paso and Pecos Valley areas extend into New Mexico.

In Louisiana, noncotton zones are maintained about all areas known to be infested and through the hearty coöperation of state and federal agencies it is hoped to clear Louisiana of this destructive cotton pest. The Texas legislature has corrected defects in the previous legislation that will make more effective control measures undertaken by state and federal governments. Recent legislation by Congress provided \$200,000 for the partial reimbursement of actual losses due to the maintenance of noncotton zones in connection with the attempt to eradicate the pink bollworm. A limit of \$5.00 per acre is established as the amount to be paid by the federal government.

The pink bollworm has made its appearance in the West Indies and it is known to occur quite generally from Monserrat north and west to Santo Domingo. Porto Rico, St. Croix, St. Kitts, and Santo Domingo are definitely known to be infested. On some of these islands attempts have been begun to control the pest by the destruction of all cotton plants and the abandoning of planting cotton for some time.

Early reports indicated a heavy infestation of the cotton boll weevil in 1921 in all infested portions of the cotton belt. The hot dry weather that prevailed later in the season held this pest in check to some extent. The boll weevil progressed in its march northward during the season, and is known to have covered about half the cotton area of North Carolina. The line of advance now extends through Chatham, Wake, and Beaufort counties. Practically all the eastern cotton belt is now infested by the boll weevil, except western Texas and Oklahoma, where it is controlled by climatic conditions, and Virginia and northeastern North Carolina, which have not yet been invaded.

Considerable progress has been made in combating the boll weevil through the adoption of improved culture methods and dusting the cotton plants with calcium arsenate. By early planting of early maturing varieties of cotton, late thinning so as to reduce vegetative growth, dusting with calcium arsenate three or four times at moderately short intervals during the season and destroying all the cotton plants at the end of the season, it should be possible to produce cotton in any of the boll weevil areas where economic conditions warrant the expense. Nearly all the agricultural experiment stations in the cotton-producing States are engaged in efforts to secure early varieties of cotton and systems of fertilizing the soil to secure early maturity, and some of them have found varieties and fertilizer treatments adapted to boll weevil conditions. In connection with dusting with calcium arsenate for boll weevil control, Stuckey of the Georgia Experiment Station found that the cotton plant, when in active growth, is very resistant to injury from spray materials. The U. S. Department of Agriculture is aiding in the introduction of Meade cotton, a long staple upland cotton, that has many of the desirable qualities of Sea Island and yields two or three times as much as Sea Island under boll weevil conditions.

The second World Cotton Conference was held in Liverpool and Manchester, England, June 13 to 22, 1921, with a large attendance from many countries.

COTTON BOLL WEEVIL. See **COTTON**.

COURLAND. Formerly one of the Baltic provinces of European Russia, but after the war included in the new state of Latvia. It lies to the north of the Russian province of Kovno, and is situated on the Baltic sea and the Gulf of Riga. Area, 10,435 square miles; population estimated, Jan. 1, 1915, 812,300; capital, Mitau or Mitava (46,800); largest city, Libau (90,700). See **LATVIA**.

COURT TENNIS. See **RACQUETS**.

COWANS, Sir JOHN STEVEN. British army officer, died, April 16. During the late war he was a member of the Army Council. He was born, March 11, 1862; entered the army in 1881, and had risen to the rank of brigadier-general in 1908. He was director-general of military education in the Indian army in 1906; and director of staff duties and training in the following year. He commanded a brigade in Calcutta from 1908 to 1910. He was quartermaster-general of the forces from 1912 to 1919, and a member of the Army Council throughout the late war.

COWS. See **DAIRYING**.

CRAVEN, WILLIAM GEORGE ROBERT, EARL OF. British landowner, drowned on falling from his yacht off Cowes, England, July 9. He was born Dec. 16, 1868, educated at Eton and inherited estates covering 40,000 acres. He was well known as a sportsman and social leader. During the war he served as King's Messenger, first between London and Headquarters in France and later in the Eastern service.

CRAWFORD, N. J. See **MUNICIPAL GOVERNMENT**.

CREDIT, RURAL. See **AGRICULTURE**.

CRETE. An island in the Mediterranean Sea, belonging to Greece after August 10, 1913, when its union with Greece was recognized by the Balkan Powers. Area, 3327 square miles; population, 1911, 344,001. Capital, Canea, with a population in 1915 of 24,399.

CRICKET. The Philadelphia Pilgrims made a successful tour of England in 1921, winning 5 games, losing 2, and drawing 5. In these matches C. C. Morris excelled in batting, while E. Hopkinson, Jr., carried off the laurels in bowling. The Halifax Cup was captured by the Merion Cricket Club. The New York and New Jersey Association tournament was won by the Bensonhurst Club and that of the Metropolitan District League by the Manhattan Club. The English County championship again went to the Middlesex players.

CRIMINOLOGY. See **PENOLOGY**.

CRITICISM, LITERARY. See **LITERATURE, ENGLISH AND AMERICAN**.

CROATIA AND SLAVONIA. Formerly a crownland of the old Austro-Hungarian Empire; after 1918 a part of the new state of Jugo-Slavia; extending from the Danube and Drave rivers westward to the Adriatic. Area according to the estimates of 1920, 17,405 square miles; population, 2,715,237. The capital is Agram or Zagreb which is the centre of the richest and most highly cultivated agricultural region of Jugo-Slavia, and since the war has increased in population, and developed important new industries. Its population in 1910 was 74,703; in January, 1921, 108,338. Its rapid development was an illustration of the changes following the war, which brought great progress to certain cities and

depression to others. In 1921 it was the chief economic centre of Jugo-Slavia. See JUGO-SLAVIA.

CROCKER, FRANCIS BACON. Electrical engineer, died in New York City, July 9. He was born in New York City, July 4, 1861; graduated at the School of Mines at Columbia, 1882, where he was instructor and then professor of electrical engineering until 1914. He was the founder and vice-president of an electrical company, and member of the most important societies in his field. He wrote among other works: *Management of Electrical Machinery* (8th edition, 1908); *Electric Lighting* (8th edition, 1908); *Electric Motors* (2nd edition, 1914).

CROOKS, WILLIAM. See NECROLOGY.

CROSS, CHARLES ROBERT. Physicist, died at Brookline, Mass., November 16. His part in the development of telephony and other improvements in applied science was important and he was also known among the pioneers in applied science education in the United States. He was born at Troy, N. Y., March 29, 1848, and graduated at the Massachusetts Institute of Technology in 1870, where he became a member of the faculty on graduation, remaining in it till his death. From 1877 to 1917 he was professor of physics and after that date, emeritus professor, and from 1885 to 1917 he was Director of the Rogers Laboratory. At his instance the first course in electrical engineering in the United States was established at the Institute in 1882. He was a prominent member of various scientific bodies in his field.

CROSS, HOWARD B. Bacteriologist, died at Vera Cruz, Mexico, December 27, as the result of yellow fever which he caught while opening a laboratory for the study of the disease under the Rockefeller Institute. He was born in 1889; and graduated at the University of Oklahoma. He studied afterwards at Johns Hopkins and the University of Chicago, and became an expert zoölogist and bacteriologist. He began the study of the microbe of yellow fever in April in consultation with the discoverer of that microbe, Dr. Noguchi.

CROSS COUNTRY RUNNING. R. E. Johnston of Pittsburg, Pa., proved the sensation of 1921 in cross country running by capturing the senior championship title together with the five- and ten-mile national titles. The point trophy in the senior championships which were held at Pittsburg was won by the New York A. C. for the second successive year. The Pittsburg A. C. runners finished second and the team of the Carnegie Institute of Technology third.

Cornell University once more scored a victory in the intercollegiate cross country with a point total of 18. Princeton was second with 87 and Syracuse third with 108. The individual winner was R. E. Brown of Cornell, who covered the six miles in 32 minutes, 20 1-2 seconds.

The American Marathon, distance 25 miles, was contested at Boston, the victor being Frank Zuna of the Paulist A. C., New York City. Zuna's time was 2 hours, 18 minutes, 57 3-5 seconds which established a new record for this event. C. Mellor of the Logan Square A. C., Chicago, finished second. Peter Trivoulidos of the Millrose A. A., New York, and winner of the 1920 race, took third place.

CROTHERS, THOMAS WILSON. Former cabinet minister in the Canadian government, died

at Ottawa, December 10. He was born at Northport, Jan. 1, 1850, and educated at Victoria College. After teaching school at Wardsville, Ontario, he ran for parliament in 1879 but without success. He was first elected in 1908 and again elected in 1911 and 1917. During the Borden administration he was minister of labor. From 1880 to 1911 he practiced law at St. Thomas, Ontario.

CROWELL, JOHN STEVENS. See NECROLOGY.

CROZIER, JOHN BEATTIE. British philosopher, died in London, England, January 8. He was born of a Scotch family in Canada, April 23, 1849, and studied in the local schools where he won a scholarship at Toronto University at the age of seventeen. He soon abandoned academic studies for medicine and graduated in medicine in May, 1872. Returning to England, he practiced as a physician but devoted a large part of his time to the study of philosophy. In this he championed the theory of evolution, tending at first to extreme materialistic conclusions. Later he studied the metaphysicians from Descartes to Hegel, but was not satisfied with their conclusions in respect to the true relation between the mind and the brain. Finding nothing conclusive either in the writings of Herbert Spencer or the metaphysicians, he worked out his own theory in an article on *God or Force* which was subsequently embodied in a book called *The Religion of the Future* (1880) which made little impression on the public. In 1897 he published a volume on *The History of Intellectual Development* which purported to show that the course of thought from early Greek philosophers to the present time followed laws admitting of definite statement and principles. This volume was well received. In 1906 appeared his *Wheel of Wealth* criticising sharply the existing systems of economics and this was followed in 1911 by *Sociology applied to Practical Politics*, in which he held that the new science was of positive practical value in solving problems of socialism, free trade, imperial preference, etc. Finally in 1917 appeared *The Last Words on Great Issues*, a survey of political and intellectual movements of the present time along with a summary of his own views.

CRUISERS. See BATTLESHIPS AND OTHER WAR VESSELS.

CRYER, MATTHEW HENRY. Surgeon, died at Philadelphia, Pa., August 12. He was born at Manchester, England, July 21, 1840. He came to the United States in 1851; graduated at the Philadelphia Dental College in 1876, and in medicine at the University of Pennsylvania in 1877. Meanwhile he had enlisted in the Civil War in the Ohio cavalry, and in 1865 was raised to the rank of major, having participated in many battles and receiving a wound in the battle at Deep Harbor, Va., July 28, 1864. He took part in the last fight between Grant and Lee, April 9, 1865. After 1877 he practiced in Philadelphia, and after 1893 he was professor of oral surgery in the University of Pennsylvania. He was also visiting surgeon of the Philadelphia General Hospital, consulting dental surgeon of the University Hospital, and a member of the important medical societies of his State. He wrote: *Regional Anatomy* (1876); *Studies of Internal Anatomy of the Face* (1901); and various works pertaining to dentistry.

CUBA. An island in the West Indies constituting a Latin American republic, comprising also

the Isle of Pines and small adjacent islands. Capital, Havana.

AREA AND POPULATION. The area is 44,215 square miles, and the population, November, 1919, 2,898,905, an increase of 261,369 over 1916; density, 65.34 per square mile. There are six provinces: namely, Havana, Oriente, Santa Clara, Pinar del Río, Matanzas, and Camagüey. The largest and most populous province is Oriente, and the next in population is Havana. The city of Havana had a population of 363,508. Other large towns are: Cienfuegos, 95,865; Camagüey, 98,193; Santiago de Cuba, 70,232; Guantánamo, 68,883; Santa Clara, 63,151; Matanzas, 62,638.

EDUCATION. The public school system was created under American supervision in 1900, but according to reports of 1921 it had not made the expected progress. Children of school age (6 to 14) according to the census of 1919 numbered 723,736. The number of schools available were 5700 which was insufficient for the purposes. Inasmuch as in 1900 when Cuba had a population of 1,500,000, there were 3600 schools, the number in 1921 was far too small in proportion. In 1919-20 the pupils in the public schools numbered 291,648 out of a possible total of 723,756, thus indicating that 432,108 children of school age were not in attendance.

PRODUCTION. The stable products are coffee and sugar, but cocoa, cereals, potatoes, and fruits are also raised, and there is a considerable mineral production. In 1919-20 the sugar crop amounted to 3,735,425 tons, valued at 1,005,451,080 dollars.

COMMERCE. The total foreign commerce of Cuba during the fiscal year 1919-20 exceeded \$1,290,000,000, which, compared with 1918-19, showed an increase of \$504,000,000, or 64 per cent. The unusual growth was largely owing to Cuban exports which surpassed those of the preceding year by \$385,000,000, while the value of the imports was only \$119,000,000 more than the year before. The increase of \$119,000,000 in importations was chiefly in the following items:

	Increase	Per cent of increase
Alimentary products.....	\$49,800,000	41.0
Textiles.....	25,800,000	21.6
Machinery.....	18,740,000	15.7
Stones, earthen, and ceramic products..	5,100,000	4.3
Animals and animal products.....	3,900,000	2.6
Chemical products and perfumery.....	2,300,000	1.8

This marked advance in the value of Cuban imports is accounted for in large measure by the phenomenal rise in prices of merchandise in the markets of origin. Exports of Cuban products during 1919-20 were valued at \$855,138,341 against \$470,259,162 in 1918-19, an increase of 82 per cent. The price of Cuban sugar was the chief cause of this gain, this article having been marketed at an average of \$0.08 per pound, the maximum cost during the year being \$0.235 and the minimum \$0.035, but the proportion of the sugar crop sold at the highest price was relatively small. The increase of 82 per cent in the exports represents \$376,000,000 worth of sugar and honey, \$13,500,000 worth of tobacco, and the remainder in lesser proportions distributed over other exports of enhanced value, with the exception of mineral products, which diminished by \$3,600,000. The balance of trade during the

fiscal year was in Cuba's favor, the exports having been greater in value than the imports by \$419,000,000, or 32½ per cent of the total foreign commerce. Of the total exports from Cuba in 1919-20, \$855,138,341, the share of the United States was \$642,148,034. The total imports of that year were \$435,257,727 and the share of the United States was \$321,627,449.

FINANCE. The budget estimates for the fiscal year, 1922-23, were: Revenue, \$72,000,000; expenditure, \$64,422,664. The largest item on the budget was that of the war and navy department which amounted to \$14,189,541; and the next was public instruction, \$9,529,717. In August proposals were made for a loan of \$50,000,000 to be negotiated in the United States and another for \$45,000,000 to be raised in Cuba. According to the Platt amendment no loan, foreign or internal, should be raised unless the revenues of the republic were sufficient to meet expenditures, including the amortization of and interest on the loan. Accordingly a tax bill was passed which would bring the revenue up to the required point. On August 30, the Cuban ministry protested in the name of the government against the Fordney Tariff bill as fatal to Cuba's trade, saying that it had already caused a loss of \$32,000,000 and that the proposed duties would impair American investments in Cuba and injure the export trade from the United States to a vast extent.

COMMUNICATIONS. Railway mileage in 1919 was placed at 3200. In foreign trade the vessels entered numbered 89,436 with 203,975,959 tons, and the vessels cleared, 88,789 with 203,436,406 tons.

GOVERNMENT. Executive power is vested in a president and cabinet; and the legislative power in a congress of two houses, namely, the senate of 24 members, and the house of representatives of 114 members. The president in 1921 was Alfredo Zayas.

HISTORY. The Liberals had charged fraud in the election of Nov. 1, 1920, and appealed to Washington on the subject. President Wilson sent General Crowder to the island to investigate the question, and certain of the charges of the Liberals having been substantiated, new elections were held in four provinces, March 15. These resulted definitely in confirming the election of Dr. Alfredo Zayas who was inaugurated May 20. The general situation was said to be improving under the administration of President Zayas and the advice of General Crowder who had been on the island since his appointment by President Wilson, having been continued under President Harding. As to the financial situation the government budget had been reduced from \$134,000,000 in the last year of Menocal's administration to \$64,000,000 for the ensuing year. A plan for an international loan had been given up and in place of it a loan for \$50,000,000 was sought from American bankers, which it was believed would suffice for the financing of the new sugar crop. Crop prospects were less promising than those for the present year. The crop for 1920 was estimated at a million tons in excess of that for 1919. The crop for 1921 was estimated at three million tons. In October a passenger aviation service was begun between New York and Havana. It was brought out in the summer of 1921 that the American Marines that had been sent to Camagüey at the beginning of the late

war were still there. For some time past the Havana press had attacked Major-General Crowder for prolonging his stay in Cuba but the United States State Department refused to act upon these criticisms and to recall him. The house of representatives of Cuba, December 7, adopted a measure, declaring that it would be a friendly act if the United States would withdraw troops situated in Cuban territory since the beginning of the war, and asking that measures be taken for the evacuation.

CULP, JULIA. See *MUSIC, Artists, Vocalists.*

CUMBERLAND PRESBYTERIAN CHURCH. This denomination was founded as a separate presbytery of the Presbyterian Church because of the refusal of the officers of the Synod in Kentucky to allow this group of churches to appoint the ministers it chose. The new church had an eventful career, grew rapidly and by 1829 there were four synods and a general assembly. The fact that the strength of the church was in the border States brought the slavery question to bear upon the denomination during the Civil War and it was barely saved from disunion. A mutual agreement was come to by the establishment of the Colored Cumberland Presbyterian Church, as affording to the negroes the opportunities they needed most for church development. In 1904 the General Assembly effected a union with the Presbyterian Church in the United States, but strong opposition in the Cumberland Presbyterian Church resulted in the formation of a new General Assembly and a legal fight to obtain possession of the church property with varying results.

The ninety-first meeting of the General Assembly was held at Greenfield, Mo. Statistics for 1921 show there were 1163 churches, with total membership of 72,052 members; church property was valued at \$1,935,072. Other statistics are for 1920 and show a total of 752 ministers; 750 Sunday Schools with about 5000 officers and teachers and 34,806 pupils. Missionary work was carried on in this country, especially among the Indians and abroad in China, where four churches are maintained with about 600 members. The educational interests of the denomination are represented by the Cumberland College, at Leonard, Texas, and the Cumberland Presbyterian Theological Seminary at McKenzie, Tenn. *The Cumberland Presbyterian* is published at Nashville, Tenn., and the *Cumberland Banner* at Tullahoma, Tenn.

The Cumberland Presbyterian Church (Colored) had, according to latest statistics (1921) 132 church buildings, with an enrollment of 13,077 members. Church property was valued at \$230,426. In 1916 there were 139 Sunday Schools, with 928 officers and teachers, and 7471 pupils. One school with 250 pupils is maintained, and missionary work is carried on in 8 States. No foreign missionary work is conducted. Total contributions for missionary and benevolent work in 1916 was \$11,995. *The Colored Cumberland*, a semi-monthly periodical, is published in Milan, Tenn.

CURAÇAO. A colony of the Dutch West Indies, comprising the islands of Curaçao, Aruba, St. Martin, Bonaire, St. Eustache, and Saba; area 436 square miles; population in January, 1920, 57,195, of which more than half were on the island of Curaçao itself. Seat of government, Willemstad on the island of Curaçao with

a population of 12,500, which has an excellent natural deep water harbor, regarded as one of the best in the West Indies. It produces and exports, aloe, divi-divi, and sisal; and it raises for home consumption, fruit, corn, cattle, salt, and sulphate of lime. Oil-refining is the chief industry, the crude oil coming from Venezuela and Mexico. The chief interest is commerce. The total imports in 1919 were \$2,826,657, and in 1920, \$6,294,200, of which the imports from the United States were respectively \$1,744,997 and \$2,595,000. The exports to the United States in 1919-20 were \$3,744,099 and \$4,122,197 respectively. During 1919, 580 steamers entered Curaçao with a total tonnage of 780,790; and 1066 sailing vessels, with a total tonnage of 92,328. Of these, 222 steamers with 243,330 tons and 37 sailing vessels with 10,206 tons were American.

CURIE, MADAME. See *CHEMISTRY, INDUSTRIAL.*
CURRENCY. See *BANKS AND BANKING, COINS, VALUE OF FOREIGN; FINANCIAL REVIEW; UNITED STATES.*

CURRIER, FRANK DUNKLEE. Former Congressman, died at Canaan, N. H., November 25. He was known as the author of the present Federal copyright law. He was born at Canaan, N. H., Oct. 30, 1853, and was admitted to the bar there in 1874, entering practice the following year. He was a member of the New Hampshire House of Representatives in 1879, a delegate to the Republican National Convention in 1884 and Speaker of the New Hampshire Senate and House at different periods. From 1901 to 1913 he was a member of Congress. Besides these representative offices he held the position of Naval Officer of Customs at the port of Boston, 1890-94.

CUSHING, HENRY PLATT. Geologist and college professor, died at Cleveland, O., April 14. He was born at Cleveland, O., Oct. 10, 1860; and graduated at Cornell University in 1882. He afterwards pursued graduate work there and in other universities, including the University of Munich. He was professor of geology at the Western Reserve University after 1892, and geologist on the New York State Geological Survey after 1893.

CUSHING, WILLIAM LEE. See *NECROLOGY.*

CYCLING. Frank L. Kramer, the veteran rider, regained the national sprint championship in 1921 by reason of the default of Ray Eaton. Both men secured a total of 30 points in the series of races, but, owing to some disagreement with the management of the track where the race was to have been held, Eaton refused to "ride off" the tie. The amateur sprint honors went to R. A. Walthour, Jr., with 3 first and 2 seconds.

Alfred Goulet of Australia and Maurice Brocco of France won the annual six-day race held at Madison Square Garden, New York. This team together with the Rut-Coburn and Lawrence-Thomas combinations covered a total of 2463 miles, 6 laps, but the victory was gained by Goulet and Brocco by reason of the larger number of points scored by them in the various sprints. Goulet has now succeeded in winning six six-day races.

CYPRUS. The third largest island in the Mediterranean sea, situated at a distance of forty miles from the coast of Asia Minor. Area, 3584 square miles; population, 1911, 274,108;

estimated, Jan. 1, 1921, 315,219, exclusive of the military. The chief towns with their populations are: Nicosia, the capital, 18,461; Limasol, 11,843; Larnaca, 10,652. In 1919-20 the elementary schools numbered 739 with 925 teachers and 42,059 pupils. Of the school enrollment 34,273 were Greek-Christians and 7554 were Moslems. The chief interest is agriculture, and the chief products in 1920 were: Wheat, barley, vetches, oats, olives, cotton, and grapes. Only about one-third of the land is under cultivation. Imports of merchandise in 1919 were £1,525,427; exports, £1,371,580. The shipping entered and cleared in that year had a tonnage of 329,474. The budget for 1921 provided for an expenditure of £535,679. This included £101,000 each for public works and police and prisons, £45,000 for land registry, £44,000 for forestry, £32,000 for medical uses, £25,000 for customs, £24,000 each for the treasury and education, £17,000 for agriculture, and £16,000 for post office. Down to Nov. 5, 1914, the island was administered by Great Britain under a convention with the Sultan of Turkey dating from June 4, 1874, but on the outbreak of the war with Turkey, it was annexed by Great Britain, and was afterwards placed under a high commissioner with an executive council and a legislature of 18 members of whom 12 are elected, the suffrage being limited to male British subjects or foreigners twenty-one years of age who have resided five years in the island and who pay certain taxes. High commissioner in 1921, M. Stevenson.

CZAPLICKA, M. A. See NECROLOGY.

CZECHO-SLOVAKIA. A new state with a republican form of government formed out of Slav regions in the old Austro-Hungarian empire; independence proclaimed, Oct. 21, 1918; government organized at Prague, Nov. 14, 1918. It comprises: Bohemia, Moravia, Silesia, Slovakia, Ruthenia, and other territories assigned by the Peace Treaty to the republic, including, particularly, the Teschen region which was divided between Poland and Czecho-Slovakia, July 28, 1920. See below under *History*. Capital, Prague.

AREA AND POPULATION. The area is estimated at 54,438 square miles and the population, based on the census of Dec. 31, 1910, 13,636,390. At the census of November, 1919, the population of Slovakia was 2,940,374 of whom 2,141,000 were Slovaks; 665,000, Magyars; 140,322, Germans. The largest cities in the respective states with their latest available figures for population are as follows: In Bohemia, Prague, 676,476 and Budweis, 43,961; in Moravia, Bruenn, 140,650; in Slovakia, Pressburg, 93,329; in Silesia, Toppau, 33,427; in Carpathian Russia, Munkacs, 20,794.

PRODUCTION. In natural resources it is one of the richest regions of Europe. The following information in regard to the natural resources of Slovakia which makes up about 25,000 square miles of the new state was supplied by the United States' Bureau of Foreign and Domestic Commerce in 1921:

Slovakia is a land of forests, mountains, and streams, about which little was known before the war. Every year timber is exported in large quantities. Connected with the lumber industry is the manufacture of toys. Toys of original designs and bright colors are a specialty of Slovakia, where they constitute one of the principal

home industries carried on by the peasants. The mineral resources of Slovakia have hardly been touched. During the war a new coal field with an estimated reserve of 124,000,000 tons was discovered in the neighborhood of Nitra, and is now turning out coal worth 8,000,000 crowns per annum. Iron to the value of 40,000,000 crowns is produced annually by the mines of Dobšina; and to the north of Bratislava petroleum has been discovered. Gold, silver, and other precious metals are also mined, in addition to large quantities of antimony, magnesium, copper, mercury, and salts. No list of the natural riches of Slovakia would be complete without special mention of the numerous springs of mineral water, which make the watering places of Slovakia the rivals of those in Bohemia. There are 30 thermal stations in Slovakia, the most famous of which are Tatranska Lomnice, Strbske Pleso, and Smokovec. The natural waters found at these places contain iron, sulphur, and iodine, in proportions which make them particularly effective for the treatment of nervous complaints, rheumatism, gout, anemia, etc. In addition to their health-giving qualities, the mineral waters of Slovakia may become one of the principal articles of export, if the necessary capital can be secured.

A flourishing sugar industry has arisen in Czecho-Slovakia based on the native sugar beet, with which 471,274 acres were sown in 1920. Other important productions are: Hops, beer, spirits, fruits, and various foodstuffs. Stock-raising is important but was reduced by the war. The mineral wealth includes: Soft and hard coal, gold, silver, copper, lead, and rock salt. In 1919 there were 366 coal mines, employing 110,233 persons, and the output was 16,980,000 tons of lignite and 10,405,000 tons of hard coal. The factories in 1920 numbered 8833 of which 2000 were textile mills; 1755, glassworks or factories for precious stones; and 1358, factories for the production of foodstuffs. The crop reports for 1921 showed a great improvement, not so much in area sown and crop harvested as in the production per hectare. On page 182 is a comparison of production in 1920 and 1921 given by the Czecho-Slovak Bureau of Statistics:

According to the enumeration of 1920 there were 581,257 horses, 4,213,454 bees, 2,015,211 pigs, 975,899 sheep, and 1,174,045 goats in Czecho-Slovakia (including sub-Carpathian Russia). Large productions of uranium ore were discovered in government mines at Jachymov and the radium contents were said to be enough to last for twenty years. Large coal seams also were reported to have been discovered in Slovakia. There were prospects of extensive radium production in the country owing to the large quantity of uranium ore found in Bohemia near the boundary of Saxony. It was estimated that the known supply of radium in this locality would last for twenty years at the present rate of production. The mines which had been acquired by the Austria-Hungarian government in 1912 passed over to the Czecho-Slovak government. The quantity produced amounted to about two grams, and the price of one gram in the autumn of 1921 was about 10,000,000 crowns.

ECONOMIC CONDITIONS. The depreciation of the Czecho-Slovak crown naturally caused a sharp rise in the cost of living, which culminated

COMPARISON OF CROP PRODUCTION, 1920 AND 1921

Crop	Area sown		Total production		Yield per hectare	
	1921 Hectares	1920 Hectares	1921 Quintals	1920 Quintals	1921 Quintals	1920 Quintals
Wheat:						
Winter.....	570,151	570,458	10,179,322	6,418,390	17.9	11.3
Summer.....	52,403	66,212	890,250	756,253	17.0	11.4
Rye:						
Winter.....	826,027	883,878	13,612,312	8,213,116	15.8	9.4
Summer.....	21,478	21,891	201,388	154,440	9.4	7.1
Barley:						
Winter.....	10,495	11,084	140,069	127,089	13.3	11.6
Summer.....	630,121	683,557	10,172,361	7,980,639	16.1	11.7
Oats.....	810,707	801,806	10,501,876	8,658,794	13.0	10.8
Corn.....	146,967	152,098	2,667,346	2,450,621	18.1	16.4

NOTE.—One hectare = 2.471 acres; 1 quintal = 220.46 pounds.

at the end of 1920 and beginning of 1921. Since then a gradual decline has taken place, which the index figures for certain main commodities will show. These figures are based on 100 for July, 1914. The June index figures are the latest available, but since then a further decline had taken place.

VALUE OF IMPORTS AND EXPORTS, IN CZECHO-SLOVAK CROWNS, 1919, 1920, AND FIRST NINE MONTHS OF 1921

Year	Imports, crowns	Exports, crowns
1919.....	6,507,307,000	5,687,569,000
1920.....	16,383,532,000	16,189,865,000
January–September, 1921.....	12,524,000,000	12,822,000,000

INDEX FIGURES SHOWING DECLINE IN CERTAIN COMMODITIES

Articles	1921	
	January	June
Flour.....	2317	897
Beef.....	1311	965
Butter.....	1826	1713
Milk.....	1368	1196
Eggs.....	2185	1257
Bituminous coal.....	2060	1873
Clothing.....	2874	2015
Footwear.....	1702	1459

There were in 1921 about 1,150,000 workingmen in Czecho-Slovakia who were members of trade-unions. The largest federation is the Czecho-Slovakian Federation of Trade Unions, with a membership of about 650,000. The next is the Bohemian Labor Committee, with about 250,000 members. With the enormous drop of the crown, followed by price advances, wages in Czecho-Slovakia have naturally increased. After January, 1921, wages decreased a little on account of the drop in prices and the cost of living, but accurate figures had not been compiled. The very great increase from 1914 to January, 1921, is shown below:

INCREASE IN WAGES, 1914 TO JANUARY, 1921

Trades	1914, crowns	January, 1921, crowns
Wages per day of work:		
Shoemakers.....	3.00–4.30	25.00–28.00
Papermakers.....	2.00–7.50	36.00–87.00
Breweries.....	2.05	56.00–80.80
Wages per hour of work:		
Smelters.....	.32–.40	5.45–6.13
Iron works.....	.50	3.79
Cabinetmakers.....	.40–.50	6.50–8.00
Building trades.....	.39	4.20–4.50

COMMERCE. The following information was supplied by the United States Bureau of Foreign and Domestic Commerce:

Of the main imports of 1920, cotton, amounting to 3,213,964,000 crowns, was the largest item, while other important imports were foodstuffs, wood, chemicals, fur, hides, oils, and silk. Of the total imports in 1920, Germany furnished goods valued at 3,857,730,000 crowns, and the United States 3,042,209,000, followed by Austria, with 1,918,943,000 crowns. Of exports beet sugar amounting to 2,219,888,000 crowns and manufactures of wood to the amount of 3,333,216,000 crowns, followed by glass and glassware, valued at 2,643,615,000 crowns, were the chief items. Austria was Czecho-Slovakia's largest customer, taking 5,726,977,000 crowns of its total exports, and Germany the next, with 2,501,022,000 crowns.

FINANCE. The budget estimates for 1921 were as follows: Revenue, 14,129,919,000 crowns; expenditure, 13,841,738,000 crowns; surplus, 228,000,000 crowns. The budget estimates for 1921 were as follows: Revenue, 18,884,209,000 crowns; expenditures, 19,671,970,000 crowns; deficit, 788,000,000 crowns. The increased estimates of expenditure for 1920 were due to the proposed outlay under the departments of defense, railways, and education and also to the payments of interest on the national debt. The national debt was composed of the following six items: (1) The share of the country in the debt of the former Austro-Hungarian empire, estimated at about 6,500,000,000 crowns; (2) the share of responsibility for the Austro-Hungarian war bonds in possession of Czech-Slovaks at the time of the armistice, estimated at 5,225,000,000 crowns; (3) internal floating debt, estimated 4,964,000,000 gold crowns, Jan. 1, 1921; (4) debts incident to currency reform measures necessitated by the influx of paper money from Austria, estimated at 11,193,700,000; (5) Contributions to the reparation fund under the Peace Treaty amounting to 6,600,000,000 crowns. Total internal debt at the beginning of 1921, about 35,000,000,000 paper crowns; total external debt about 5,000,000,000 gold crowns. The Bureau of Foreign and Domestic Commerce supplied the following

information in regard to the budget for 1922. Including extraordinary expenditures, it amounted to more than 19,500,000,000 crowns. A deficit of nearly 800,000,000 crowns had to be covered by loans. Anticipated outlays exceeded the preceding year's by almost 6,000,000,000 crowns, owing principally to increased expenditures for defense, education, and transportation. A gain of approximately 5,000,000,000 crowns over the past year was estimated in revenues, chiefly in receipts from customs, excises, government monopolies, turnover, and luxury, and transportation taxes. The new budget also contained provisions for the issuance of long-term bonds to the amount of 3,000,000,000 crowns, to be used for public improvements. The total indebtedness, Jan. 1, 1921, was given as follows: Internal debt, 25,000,000,000; foreign debt, 3,500,000,000 francs.

COMMUNICATIONS. The total mileage of the railways, all State owned, amounted in 1921 to a little more than 8000. There was a shortage of cars and rolling stock, which hampered trade to a certain extent. The government allotted 6,481,050,000 crowns to cover the necessary improvements in the railway service. These included the reconstruction of machine shops, the replacement of rolling stock destroyed during the war, and new construction to meet the requirements of increased traffic. The expenditure of this sum was to be distributed over five years, beginning in 1921. Another important factor in the transportation system of Czecho-Slovakia is the Danube river. According to prewar statistics, nearly 2,000,000 tons of goods were annually carried on the Danube from the industrial centres to the great Balkan markets. A large company was formed in 1921 with a capital of 140,000,000 crowns, for the development of this traffic.

HISTORY. During the first part of the year the press was mainly concerned with reports of Bolshevik plots. Another subject of public interest was the plan of the foreign minister, M. Benés, for understandings with other Balkan Powers and Italy as to common measures of safety to be taken against the Hungarian government in view of the danger of reaction in that quarter. In May there were reports of disturbances in the non-Czech populations owing to their opposition to Czech supremacy, and movements were reported among the other Slavs and the Ruthenians for self-government. There was especial dissatisfaction with the union on the part of the Slovaks but data on the subject were conflicting. On the one hand prominent representatives of Slovakia protested against the attempt to give the impression that the province desired a separate existence and insisted that the people were loyal to the Czecho-Slovak state. On the other hand, there were continual reports generally from Hungarian sources that disaffection was rapidly spreading among them and one of these accounts declared that a Slovak national council had been elected for the purpose of bringing about secession from the Czech republic. There had been after the armistice a succession of disturbances arising from the anti-Catholic spirit of certain Czech groups who

cherished a traditional hatred of the Church on account of its coöperation in the past with the Hungarian government in attempts to Magyarize the Slovaks. The upper clergy in Slovakia were closely identified with the Hapsburg régime. It appeared, however, in the autumn of 1921 that these misunderstandings had been removed and assurances of good-will passed between the President and the leading spokesman of the Catholic clergy in the province.

The President made a tour of the country for the observation of these conditions in the autumn. Soon after his return to the capital the Cerny ministry fell from power. It had been appointed simply as a provisional ministry and consisted rather of technical experts than of party men. After conference with the various political groups the President charged M. Benés with the formation of a new ministry. The latter as Minister of Foreign Affairs had been prominent throughout all Europe as the mouthpiece of Czech-Slovak policy and especially as the advocate and defender of the Little Entente. He was one of the most influential men in the state and had frequently collaborated with the President. There were still serious divergencies of view and sharp party lines in the country. In certain localities Pan-Germanism was active and in others Communism was a menace. These tendencies caused anxiety and there was also the Magyar element which was constantly intriguing against the government.

France in accordance with her policy of protecting the newly created states of Central Europe had formed a military accord with Czecho-Slovakia. While this appeared to meet with the approval of the majority it was sharply attacked by the radical groups. A criticism of it in parliament toward the end of the year brought from Czecho-Slovakia's Minister of National Defense, a vindication of the arrangement. This elicited from the French Minister of War a congratulatory letter thanking the government for its defense of the French military mission in Czecho-Slovakia. On this occasion both governments referred to the friendship of the two armies. The Czecho-Slovak government emphasized the importance of the French military mission and the Czecho-Slovak press in general supported the government and attributed the criticism of the French military mission to the Germans, the Communists, and certain extreme members of the Socialist party. In August a military convention was signed with Jugo-Slavia providing for the execution and defense of their treaty of alliance. It placed at the disposal of the two states sufficient forces for this purpose and provided for unity of command and mutual organization. A commercial agreement was formed with Poland in the closing months of the year and it was followed by a political treaty which, according to the official accounts, was not directed against any third country but merely sanctioned the friendly relations between the two signatory powers. At the same time, however, it was announced that the agreement expressed the joint determination of the two countries to resist the restoration of the Hapsburgs in any circumstances.

D

DAHOMÉY. A French colony of West Africa on the coast extending from Togoland on the west and the British possessions of Lagos and Nigeria on the east, northwest to the French Military Territories; a part of the government-general of French West Africa (q. v.). The coast extends only about 70 miles. The area was estimated in 1920 at 42,460 square miles and the population at 860,590, including 590 Europeans. Seat of government, Porto Novo, with about 20,000 inhabitants. The natives are of pure negro blood and belong to the Ewe family. Along the coast they grow corn, yams, manioc, and potatoes. The chief forest products are palm oil and palm kernels, which are the chief exports. Besides the capital, which is the business centre of the country, other towns of importance are: Abomey (12,372); Whydah or Ouida (13,000); Grand Popo (2115); Kotonu (2456). The chief imports are cotton, machinery, liquors, and tobacco and the chief exports, palm kernels and palm oil, corn, and copra. In 1919 the exports of palm kernels amounted to 45,188,505 francs and of palm oil to 20,260,490 francs. In 1919 the United Kingdom and France participated to about the same extent in the foreign trade, each having about 30 per cent. There is a railway from Kotonu to Savé, whence there is a branch to Whydah a total distance of 176 miles. A prolongation to Chaoru, a distance of 400 miles, has been projected. In 1919, 114 vessels of 259,887 tons entered and 123 vessels of 277,003 tons cleared. The local budget for 1920 was given at £7,785,175.

DAIRYING, PRODUCTION AND PRICES. Although the prices of dairy products decreased considerably during the year, the production of some dairy products increased materially. During 1919 an accumulation of dairy products was brought on by a decrease in foreign trade with production maintained. The last of the year saw a reaction in the industry due largely to the cutting off of the outlet to Europe. Along with this condition, the general deflation in all directions had a tendency to lower the price of all dairy products, but the price of dairy products did not go down relatively so much as did feeds, so that the dairy cow furnished a better outlet for feeds than the general market.

In some sections of the country, corn and some other grains, and also hay, were at an exceedingly low price level. It was even difficult in some sections to sell some of these products at all. The effect of this was to stimulate feeding to animals, and also brought an increased demand for dairy cows. During the condition in previous years of high cost of feeds, it was the practice to give the cows only a limited quantity of grain; but during 1921 there was rather heavy feeding of grain, and, as a result, a material increase in production. This is especially true in the middle western part of the country where the largest part of the creamery butter is manufactured. The most noticeable increase, therefore, was in butter.

The outlet for evaporated and condensed milk, and also milk powder, had stimulated production of these products up to 1920, and when the trade for them was cut off, the price was reduced to a point that largely decreased production, and the manufacture of these products was considerably less than during 1920. A great many condenseries and milk-powder plants were closed during the year.

The decrease in the production of condensed and evaporated milk was partly responsible for the increased production of butter, because milk formerly made into these products was diverted to butter manufacture. The greater part of the increase, however, was brought about by increased feeding and the milking of more animals in some sections.

In spite of the fact that production of butter increased very materially, the price of the product did not go down in the same ratio as most other agricultural products. Consumption was increased sufficiently by the rather severe drop in price during the spring to bring up consumption to a point which utilized the entire manufacture at a relatively high price. Cheese and condensed milk, however, did not maintain their relative position in price, especially cheese, which has remained at an exceedingly low price during the year.

Indications are that the consumption of milk in the cities has increased in spite of the adverse financial and labor conditions in many centres. Here again it has been due partly to the decrease in price, but also campaigns to increase consumption have been factors in the increased consumption of whole milk, especially in the cities.

FOREIGN TRADE IN DAIRY PRODUCTS. During 1921 the swing from a net importing nation of dairy products, in 1914, to a rather large exporting nation during the war and immediately following, was again back to a point showing a net import of both butter and cheese, with, however, considerable quantities of evaporated and powdered milk going out.

When the increased tariff was imposed, beginning in the early summer, there was apparently a stopping of the imports of butter which had reached considerable quantities by that time.

The following table shows the foreign trade in dairy products for the fiscal years 1920 and 1921:

	<i>Imports</i>	<i>Exports</i>
Butter:		
1920 (fiscal year).....	20,770,959	27,129,834
1921 " ".....	34,343,653	7,829,255
Cheese:		
1920 (fiscal year).....	17,913,682	19,427,300
1921 " ".....	16,584,678	10,825,603
Condensed and evaporated milk:		
1920 (fiscal year).....	19,080,642	707,847,328
1921 " ".....	19,272,528	262,668,306

In spite of the increased tariff, both butter and cheese continued to come in increasing amounts,

during the last of the year. Canada, Denmark, and Australia contributed the largest quantities of butter, and because of the rather dull market in England, there was a tendency to divert butter formerly going to England to this country. Ireland and New Zealand therefore are offering butter in increasing quantities. Because of this situation, the dairy interests quite generally are asking for increased tariffs on dairy products.

Previous to the war, large quantities of foreign varieties of cheese were imported to this country, but on account of restrictions preventing exportations during the war, and because of the need for those products for home consumption, little was exported to the United States. This stimulated the interest in the manufacture of those products in this country, and up to the early part of 1921 much of the foreign varieties of cheese were being manufactured. During the summer and through to the last of the year, however, there was a tendency to return to the prewar condition, and considerable quantities of all the foreign varieties of cheese are now being imported.

DAIRY CATTLE. Although the prices of products were greatly decreased during the early part of the year, and there was a tendency to dispose of cows, the price of feeds was so low that dairy cows came into demand before midsummer; and for grade animals, kept primarily for milk production, there was considerable demand in the territory outside of the city-milk centres. Large numbers of cattle were shipped from such States as Wisconsin to States west of the Missouri river. On account of the financial situation, the demand for pure-bred animals was not so active, and prices for such animals prevailed at relatively low figures. During the latter part of the year, however, there was a tendency to pure-bred buying and the pure-bred breeders were somewhat encouraged.

The U. S. Census Bureau has reported during the year on the number of dairy cattle and the value of dairy products. On Jan. 1, 1920, there were 20,892,341 dairy cows of two years or over, compared with 21,795,770 cows and heifers of 15½ months old or over in 1910. On account of the difference in age classification in the two census years, the figures are not directly comparable, but the report believes that proper allowance for this and for the time of enumeration would leave a substantial increase in the number of dairy cows, rather than a decrease.

Dairy cattle had an estimated value of \$1,886,188,430 in 1920. The value of dairy products of farms in 1919 is stated at \$1,481,462,091, as compared with \$596,413,463 in 1909, an increase of 148.8 per cent, due in considerable extent to difference in prices. The dairy products consisted of milk, cream, and butter fat sold, and butter and cheese made on farms.

EXPERIMENTATION. The active interest in the discovery of certain substances contained in milk, sometimes called accessory products or vitamins, has turned a great many investigators to this subject. The importance of these heretofore unknown substances is so great, from the standpoint of health and growth, that physicians, food chemists, nutrition experts, and others have given the matter much attention. During the year, therefore, studies attacking this subject from various angles were of the greatest importance. The investigations included studies with respect to the effects of deficiency of these products in

rations, and this in turn led to studies to determine if possible the amounts of these substances contained in milk products, and whether or not they were partly or entirely destroyed by the action of heat or other treatment to which the products are submitted in the process of preparation for market or manufacture.

Still another angle to investigations growing out of the discoveries of vitamins and their effect in nutrition was the possible effect of supplying these accessory products to dairy cows.

In connection with the destruction of vitamins in the manufacture of products, the effects of heat and of oxidation have had the greatest attention.

A more rapid growth of the milk powder industry was partly prevented by a failure to produce a whole milk product that would not deteriorate when kept a considerable time. In the studies of this product, therefore, the attention has been turned to processes of manufacture and methods of storage that would preserve the quality of the whole milk powder. Some progress has been made in this direction.

PUBLICATIONS. The following are among the books on dairying that have been published during the year: M. Mortensen, *Management of Dairy Plants*; H. A. Whitaker et al., *Pasteurization of Milk*; H. E. Erdman, *The Marketing of Whole Milk*.

DALE, Sir ALFRED. British educator, died in London, August 15. He was born, Dec. 2, 1855; educated at Cambridge where he won prizes in English poetry; and was lecturer and tutor at Cambridge for twenty years, beginning in 1879. He was then appointed principal of University College, Liverpool, and was vice-chancellor of that institution from 1903 to 1919. He served on various educational councils, and edited works pertaining to the history of Trinity Hall, Cambridge, and of English Congregationalism. He also wrote: *The Life of R. W. Dale* (1898).

DALLAS, TEXAS. See GARBAGE AND REFUSE DISPOSAL.

DALMATIA. Before the breaking up of the Austro-Hungarian empire, a crownland of Austria; since November, 1918, a constituent part of the new state of Jugo-Slavia; bounded on the east by Boenia and Herzegovina; and on the west by the Adriatic sea; area, 5090 square miles; population, estimated, 1920, 621,503. While it was a part of the Austro-Hungarian area the Croat-speaking element was placed at 610,669 and the Catholics numbered 539,074 as against 105,338 Orthodox Greeks. Capital, Zara, with a population of about 14,000. Other important towns: Spalato, about 21,000; Ragusa, about 9000; Cattaro, about 3000 all of which are seaports. Certain of its territories were in dispute with Italy after the war but a decision was reached in regard to them by the treaty of Rapallo in 1920. See the article *War of the Nations* in the preceding YEAR BOOK.

DALTON, JOHN HENRY. See NECROLOGY.

DALTON LABORATORY PLAN. See EDUCATION IN THE UNITED STATES.

DAMS. The construction of dams to impound water for city water supply, power and irrigation, was active in 1921, and with power surveys and discussion it was believed that much more of this work as well as flood control (see FLOODS AND FLOOD PROTECTION) projects would be put under way in the near future, as certainly the need was manifest not only in America but throughout the inhabited world. Naturally many of the dams

planned or under construction were part of Irrigation, Power or Water Supply projects, and are discussed elsewhere under those heads, while the Muscle Shoals Development becoming as it did in 1921 a matter of national interest is described under **MUSCLE SHOALS**. Among the more interesting projects and construction of the year the following may be considered.

RIMROCK DAM. Early in 1921 the U. S. Reclamation Service resumed work on the \$2,500,000 Rimrock impounding dam near the headwaters of the Tieton river, in the State of Washington, 26 miles above Naches. The construction of this dam was in progress for five years, but was interrupted in 1917, when the United States entered the war. The work was being prosecuted in earnest during the year 1921 and it was planned to expend more than \$750,000 of the available appropriation of \$2,500,000.

The Rimrock dam was designed to create a deep artificial lake 7 miles long and 1 mile wide in certain stretches by flooding land adjacent to the river. This storage basin was to impound 185,000 acre-ft. of water to be used for the irrigation of the Yakima Valley lands making possible the reclamation of some 75,000 acres of land in addition to 360,000 already reclaimed. The dam will be of earth and rock fill type of construction, 900 ft. long and 222 ft. high, and will contain about 1,785,000 cu. yd. of material. The excavations into the bed of the stream made during the year were carried down to bed rock 95 feet below and on this the core wall was founded. A notable feature was that the core wall was a continuous barrier five feet in thickness and extending down 100 feet below the river bed. To build it shafts were sunk, a cross-tunnel run, and the wall built upward by stoping and concreting layer by layer. The entire design is fully discussed by F. T. Crowe of the U. S. Reclamation Service in the October *Reclamation Record*. About \$400,000 had been expended when the work was stopped by the war in 1917.

HETCH HETCHY DAM. After excavation that went down to a maximum depth of 146 feet below flood water level, work was so far advanced that the first concrete could be poured late in August, and on November 18 a total of 53,000 cu. yd. had been placed. The scale in which this is done can be appreciated from the fact that the record for 8 hours was 1239 cu. yd. of concrete poured and during the first 18 days of November six 8-hour shifts placed more than 1000 cu. yd. each. The contract on which work was in progress at the end of the year was for carrying the dam up to a height of 342 ft. above the lowest foundation. This would involve a total of 365,000 cu. yd. of concrete and was to be completed before Feb. 1, 1923, in time to store the 1923 summer runoff. The Hetch Hetchy Dam discussed at length in the *YEAR BOOK* for 1919, is a fundamental part of a new water supply project for the city of San Francisco, Calif., and was being built across the Tuolumne river.

CALAVERAS DAM. During the summer of 1921 in compliance with an order of the California Railroad Commission work on the Calaveras dam of the Spring Valley Water Co. in California was resumed. This dam at its temporary height of 85 ft. stored 8,000,000,000 gal.; but when raised to 175 feet as proposed it would impound 43,000,000,000 gal. and accordingly would increase the available daily supply of San Francisco by 24,000,000

gal. Preparatory work was begun in earnest: See *YEAR BOOKS* for 1914, 1915, and 1916.

DON PEDRO DAM. On March 23, 1921, a joint board representing the Turlock and Modesto irrigation districts in the San Joaquin Valley Calif., decided to have the high masonry Don Pedro Storage Dam on the Tuolumne River built by day labor instead of by contract.

The dam as designed was to be built on a simple curve with a radius of 675 ft. It was to be 280 ft. high, 975 ft. long on the crest, and contain 266,000 cu. yd. of concrete. It was thought that only about 10,000 cu. yd. of excavation would be necessary to expose solid rock underlying the site, but some 120,000 cu. yd. of excavation would be required in cutting a spillway channel in the canyon wall at the north end of the dam. There was also involved the construction of a narrow gauge railroad from the Southern Pacific line at Hickman to the dam site, a distance of 29 miles. On this line about 12 miles from the dam site there were gravel pits from which gravel for the concrete was to be taken. A total cost of approximately \$4,000,000 was estimated for the project which would require about two years for its accomplishment.

WICHITA RIVER DAM. During the year a project of large size was set on foot when on November 18, the Wichita Falls (Texas) Irrigation District awarded a contract for an earth storage dam across the Big Wichita river 50 miles above Wichita Falls, at an estimated cost of \$1,259,254. There was also to be a diversion dam of the gravity concrete spillway type with a movable crest, to cost \$726,150; and two canals, the South Side canal leading to Wichita Falls from the diversion dam, 30 miles below the storage dam, to Lake Wichita, the source of the city's water supply, to cost \$566,234; and the North Side main canal, to cost \$802,573.

SAN PABLO DAM. During the year there was completed the large dam of the San Pablo water supply project for the city of Oakland, Calif. This project was started in August, 1916, by the East Bay Water Co. and the dam was advanced far enough to be used for storage in 1920. It was an earth dam built by the hydraulic sluicing method, 110 ft. high, with a base width of 1300 ft., a crest length of 1250 ft. and contained about 2,200,000 cu. yd. of material.

The project also included a 115-ft. concrete intake control tower, a 14,000-ft. concrete-lined tunnel with a capacity of 100,000,000 gal. per day and a rapid sand filtration plant with a normal capacity of 12,000,000 gal. per day.

PROPOSED YELLOWSTONE DAM. The proposed plan to build a dam across Yellowstone River at a point not more than three miles below the outlet of Lake Yellowstone in order to regulate the waters of the lake for irrigation purposes, was adversely reported on by Secretary of the Interior Fall. He said in part in this connection:

"I cannot favor the enactment of the measure. I do not believe it would be advisable for Congress to permit private interests to develop irrigation or power sites within the limits of existing national parks. These parks were created by Congress for the preservation of the scenery, forests, and other objects of beauty and interest in their natural conditions and they are created and maintained for general and national purposes, as contradistinguished from local developments.

"If cases be found where it is necessary and advisable in the public interest to develop power and irrigation possibilities in national parks and it can be done without interference with

the purposes of their creation, I am of the opinion that it should only be permitted to be done, whether through the use of private or public funds on specific authorisation by Congress, the work to be constructed and controlled by the federal government."

KRISHNARASA SAGRA DAM. This large masonry dam which was under construction in 1921 across the Kaveri river in the state of Mysore, India, ranked among the world's large structures of this type. This dam was to provide both irrigation and power as it would afford an unfailing supply of water impounded in the monsoon season for the use of the farmers whose cultivable land would be increased in acre, while at the same time it would develop the increased power needed for the large hydro-electric station at Sivasumudrum lower down the river. The new dam was to afford a storage reservoir of 41,500 million cubic feet capacity which would cover nearly 30,000 acres. The dam was being built of rubble masonry with cut stone faces and ultimately would rise to a height of 120 feet, but the first stage provided merely for a height of 80 feet. The final construction would afford irrigation for over 500,000 acres of land and would meet all power requirements. The dam was built on sound rock, to reach which at points considerable excavation was required, and the foundation actually laid was 5150 feet in length. The completed dam was to contain nearly 30,000,000 cubic feet of masonry of which over two-thirds had been finished by 1921.

In this connection it is of interest to consider the other reservoirs and dams in India. Those already constructed were the Periyar in the Madras Presidency, the Marekanave in the Mysore State, Lake Whiting at Bhatgarh which supplies the Nira Canal in the Bombay Presidency, and the Tansa Reservoir, the principal source of water supply for Bombay and Lake Fife near Poona. Comparing the differing dams as to height it may be stated that the maximum height of the Kaveri Dam was to be 143 ft., the corresponding height of the Periyar Dam is 173 ft., of the Marekanave Dam 167 ft., of Tansa 118 ft. The total capacity of the Krishnaraja Sagara Reservoir 41,000 million cu. ft., may be compared with that of Marekanave, 30,145 million cu. ft., and that of Periyar 6185 million cu. ft. See **FLOODS AND FLOOD PROTECTION, IRRIGATION, WATER SUPPLY.**

DANFORTH, LOOMIS LE GRAND. Physician, died in New York City, November 8. Since 1886 he had been physician of obstetrics at the New York Homeopathic College. He was born in Monticello, N. Y., in 1849 and graduated at the College of Physicians and Surgeons in 1874 from which date he practiced in New York. He was also on the staff of the Flower Hospital after 1900. He contributed extensively to the medical periodicals.

DANISH LANGUAGE. See **PHILOLOGY, MODERN.**

DANISH LITERATURE. See **SCANDINAVIAN LITERATURE.**

DANZIG. A free state constituted by the Treaty of Versailles in 1919; formerly belonging to Germany. Area about 794 square miles; population, Oct. 8, 1919, 351,380 of whom about 7 per cent were Poles. Article 102 of the Treaty provided for the establishment of the city along with its surrounding territories as a free state

under the protection of the League of Nations. The League of Nations established its administration under a high commissioner. To this office Sir Reginald Tower was appointed in 1920 and was succeeded, Jan. 24, 1921, by General Sir Richard Haking. Danzig has for centuries been a great shipping point and grain centre. During the war the shipping was greatly reduced and did not recover during the two years following although it was beginning to show improvement in 1921. The complete figures for the year were not available. The following information in respect to shipping during the first nine months of the year was supplied by the Bureau of Foreign and Domestic Commerce. During this period vessels totaling 1,232,840 net tons entered the port, while during the same period of 1920 ships aggregating 713,621 net tons entered. This increase, amounting to 72 per cent, was due largely to German and Danish shipping, composed mainly of small freight and passenger vessels engaged in Baltic trade. American tonnage (207,690) constituted about 17 per cent of the total and reached its highest point in May, 1921, when 13 vessels, of 37,551 tons, entered the port. Two of these were passenger ships maintaining regular services between New York and Danzig. The other 11 were cargo vessels entering, for the most part, with partial cargoes for Danzig and other Baltic ports.

DARBY, WILLIAM JOHNSON. Clergyman, died, Newburg, Md., February 11. He was born in Lyon County, Ky., Nov. 17, 1848; graduated at the University of Michigan, 1869; and studied theology at Cumberland University, 1871. From the latter year until 1889 he held a pastorate at Evansville, Ind., which greatly increased under his administration. He was then for three years manager of the publishing work of the Cumberland Presbyterian Church, and after 1895 he was the secretary of the Cumberland Presbyterian Church. He was prominent in the organization of the Women's Board Missions, the Board of Ministerial Relief, the Christian Endeavor Society, and other important church bodies.

DARTMOUTH COLLEGE. A non-sectarian institution of higher learning at Hanover, N. H.; founded in 1869. In the fall session of 1921 the enrollment was 2011. The faculty numbered 160. The income for the year was \$550,000. The library contained about 170,000 bound volumes. President, Ernest Martin Hopkins, Litt.D., LL.D.

DAVIES, (SARAH) EMILY. British leader of the woman's movement, died at Hampstead in July. She was born April 22, 1830, and was prominent in educational reforms in the interest of girls in the 1860's. She was at first active in the movement for the secondary education of girls and later in that for the admission of women to universities. She was mistress of Girton during the first three or four years of its existence. She was also a leader in the movement for parliamentary votes for women.

DAVIS, CHARLES HENRY. American naval officer, died at Washington, D. C., December 27. He was born at Cambridge, Mass., Aug. 28, 1845; graduated at the Naval Academy in 1864; rose to the rank of lieutenant-commander in 1885; captain in 1898; and rear-admiral in 1904. He commanded the auxiliary cruiser *Dixie*, in 1898, and the second squadron of the Atlantic fleet in

1905. He retired, August 28, 1907. He served at various stations, and on expeditions for determining the differences in longitude by means of submarine telegraphic cables. Among the many posts that he held was that of superintendent of the Naval Observatory. He was in command of the *Alabama*, 1902; and division commander of the battleship squadron in 1904. In the latter year he was appointed representative on the international commission of inquiry into the North Sea incident in Paris. Public attention was drawn to him in 1907 in connection with the earthquake at Kingston, Jamaica. His offer to aid sailors in aid of the inhabitants was refused by Governor Swettenham on the ground that it was not proper to permit the landing of a foreign force. General opinion sustained Admiral Davis in this matter and condemned the governor for lack of tact.

DAVIS, WALTER JUAN. Editor and writer, died in New York City, December 4. He was born at Lexington, Mo., in 1860 and going to New Mexico entered the territorial legislature where he became democratic floor leader. In 1890 he went into newspaper work in Denver, Colo., where he was engaged in journalism for the most part until 1913 when he came to New York and joined the editorial staff of the *Morning Telegraph*.

DAY, ERASTUS SHELDON. See NECROLOGY.

DEATH RATE. See VITAL STATISTICS.

DEFREGGER, FRANZ VON. Austrian genre and historical painter, died during the year. He was born in Tirol, April 30, 1835; studied at Munich; and gained a great success with his painting of a wrestling match, 1870. Other well-known paintings are: "The Last Summons" (1874); "The Zither Players" (1876); "The Fashionable Tirolese" (1882); "The Fortune Teller" (1891); "Before the Dance" (1892). Albums of his work were published in Vienna (1889-92) and in Munich (1895).

DELAWARE. POPULATION. According to the report of the census of 1920, there were 223,003 residents in the State, Jan. 1, 1920, as compared with 202,322 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	177,000	6,549,000	\$2,947,000
	1920	173,000	6,488,000	4,866,000
Wheat.....	1921	113,000	1,300,000	1,274,000
	1920	116,000	1,972,000	3,372,000
Hay.....	1921	74,000	189,000	1,548,000
	1920	75,000	1106,000	2,266,000
Potatoes.....	1921	10,000	500,000	550,000
	1920	10,000	1,060,000	1,060,000
Sweet potatoes.....	1921	9,000	900,000	990,000
	1920	9,000	1,152,000	1,152,000

¹ Tons.

FINANCE. The total balance at the close of the fiscal year, Jan. 10, 1921, was \$1,785,115. The cash receipts for the general fund during 1920 were \$4,426,436 and the expenditures \$4,113,298. The total liabilities of the State, January 10, were \$3,056,785.

CHARITIES AND CORRECTIONS. The institutions owned and controlled by the State include the Delaware State Hospital for the Insane at Farnhurst, the Ferris Industrial School at Marshallton,

Edgewood Sanitarium (for colored tuberculous patients) at Marshallton, the Home for the Feeble Minded at Stockley, and the Blind Shop in Wilmington. The population, Jan. 1, 1919, of institutions in receipt of public funds was 1745.

LEGISLATION. The 98th session of the General Assembly of Delaware opened on January 4. Amendments to the constitution were proposed providing for the levying of and collecting of a capitation tax on every citizen 21 years of age or over and providing that no one should be disqualified to hold any office of public trust by reason of sex. The acts of the session included the imposition of an income tax for school purposes; amendment of the code of the State in respect to alien land ownership, the amendment providing that only such aliens as are eligible to citizenship might acquire, possess, inherit, or transfer real or personal properties, and that all other aliens were authorized to do so only in the manner and to the extent prescribed by any treaty between the United States and the country of origin; act providing for a tax on shares of banking corporations; act in relation to the use of a prophylactic against diseases of the eye in the new-born; creation of the budget system for all State departments, bureaus, etc.; regulation of buildings and loan associations; establishment of a child welfare commission for the State; act requiring local boards of education to provide part-time educational opportunities for children under 16 years not attending school, attendance at part-time classes to be compulsory; legislation carrying out the educational programme of 1920 for the establishment of a general and efficient system of free public schools; act to assist in the Americanization of the foreign born, non-English speaking residents of the State; improved sanitary regulations for the protection of females employed in the State, regulations of the weighing, testing, buying, and selling of milk and cream with a view to preventing fraud and protecting the public health; provision for the support and education of children in certain cases; act making it unlawful for a landlord to refuse to rent on account of children in tenant's families.

OFFICERS. Governor, William D. Denney; Lieutenant-Governor, J. Danforth Bush; Secretary of State, A. R. Benson; Attorney-General, Sylvester D. Townsend, Jr.; Treasurer, Geo. M. Fisher; Auditor Daniel Thompson.

JUDICIARY. Chancellor, Josiah O. Wolcott; Chief Justice, James Pennewill; Associate Justices, Herbert L. Rice; William Watson Harrington; Charles S. Richards; Associate Judge-at-Large, Thomas B. Heisel.

DELAWARE RIVER BRIDGE. See BRIDGES.

DENMARK. A Scandinavian kingdom in northern Europe comprising the peninsula of Jutland and the groups of islands to the east. By the plebiscite of 1919 under the terms of the Peace Treaty, a part of Schleswig was united to Denmark. Capital, Copenhagen.

AREA AND POPULATION. The total area according to the census of Feb. 1, 1921, is 16,566, including Schleswig, and the total population 3,268,807, as compared with a total population in 1916 of 2,940,979. The population in North Schleswig, Feb. 1, 1921, was 184,133. The movement of population in 1919 was as follows: Births, 68,714; deaths, 39,589; marriages, 25,073. The sex distribution in 1916 was: Males, 1,415,822 and females, 1,505,540. The population of

Copenhagen, the capital, in 1916 was 506,390, and with suburbs, 605,772. Other important cities with their populations: * Aarhus, 65,858; Odense, 45,303; Aalborg, 38,102; Horsens, 25,149; Randers, 24,428.

EDUCATION. Elementary education is free and compulsory between the ages of seven and fourteen. The schools are maintained by taxes on the communes. In 1919 there were 3474 public elementary schools of which 65 were in Copenhagen and 162 in other towns and 3247 in the country districts, with 406,000 pupils. The attendance at government schools and private schools in 1919 was about 63,000. For higher education there are various technical and professional schools and colleges and the University of Copenhagen, which had about 100 teachers and 3200 students.

PRODUCTION. Agriculture is the chief occupation. The holdings are for the most part small. The chief crops are wheat, barley, rye, oats, kohlrabi, potatoes, and hay. The following table from the *Statesman's Year Book* of 1921 gives the acreage and production of the chief crops for two years:

Crops	Area		Production	
	1919, acres	1920, acres	1919, tons	1920, tons
Wheat.....	124,496	156,405	161,200	189,000
Rye.....	518,965	525,512	378,700	319,700
Barley.....	568,766	596,292	533,900	512,700
Oats.....	966,813	1,012,787	690,700	684,100
Mixed grain.....	581,642	.....	379,000	349,100
Potatoes.....	225,597	.....	1,444,800	.....

Live stock reported in 1920 were as follows: Horses, 563,467; cattle, 2,286,408; sheep, 504,241;

Heavy depression in practically every industry continued to be the keynote of the Danish industrial situation, and while a slight improvement was noticeable in some lines the general tone was not encouraging. German competition still tended to aggravate the situation, as the currency differences between the two countries made it difficult for Danish industries to compete, and curtailment of production, or the entire closing down of some industries, resulted. Insistent demands were made upon the government for protective-tariff legislation, but inasmuch as the Agrarian Party (unfavorable to this policy) was in control of the government, success seemed doubtful.

Unemployment naturally followed the depressed industrial situation. Toward the end of the year reports, however, indicated a slight decrease in the number of unemployed, as the renewed activity in the clothing, leather, and shoe industries bettered the situation, especially in Copenhagen, where more than half of the unemployed workers were found. The number of unemployed toward the close of the year totaled about 300,000. During the first three-quarters of 1921 wages were reduced by 20 to 25 per cent, skilled labor suffering the greatest decrease.

COMMERCE. No later figures were available for commerce than those given in the preceding *YEAR BOOK*, which did not include totals for 1919. In 1918 the total imports of general produce was 945,747,000 kroner; special imports, 910,210,000 kroner; general exports, 758,446,000 kroner; special exports, 710,490,000 kroner. The following table shows the distribution of the foreign trade by countries:

Countries	Imports (general)		Exports (general)	
	1917, kroner	1918, kroner	1917, kroner	1918, kroner
Germany.....	237,181,000	316,109,000	488,415,000	307,632,000
United Kingdom.....	283,946,000	195,878,000	264,607,000	51,596,000
Sweden.....	137,160,000	235,381,000	113,145,000	186,700,000
Norway.....	30,687,000	47,345,000	78,705,000	127,722,000
United States.....	214,139,000	37,557,000	4,052,000	1,854,000
Rest of America.....	71,409,000	2,334,000	3,224,000	3,534,000
Holland.....	17,328,000	20,125,000	2,934,000	5,644,000
France.....	13,524,000	4,406,000	1,896,000	2,300,000
Danish Colonies.....	4,397,000	5,746,000	17,961,000	12,726,000

swine, 1,007,861; hens, 13,997,015. The industries in Denmark include distilleries, breweries, manufactures of sugar, margarine, etc. In 1919 there were 12 distilleries producing 4,490,000 litres. The fisheries are also an important industry. The catch in 1919 amounted to £3,006,222 and the fleet in that year had 15,422 boats.

ECONOMIC CONDITIONS. The cost of living was materially lowered during 1921, and during October and the first part of November wholesale price levels showed a continued decline. The index number compiled by *Finans Tidende*, for the wholesale prices, based on 100 in 1913, advanced to 403 in October, 1920. In January, 1921, it had declined to 290 and in October, 1921, it had been further reduced to 202. This continued downward movement was caused largely by extensive declines in wheat, rye, oats, potatoes, beef, and several other important staples; slight declines were also noted in building materials, while textiles, cotton, wool, and leather prices remained unchanged. Generally speaking, fuel oils and raw materials showed a slight increase in price, while foodstuff prices fell considerably.

According to press accounts the trade figures showed a favorable balance to Denmark at the close of the year. During the first six months of 1921 imports declined, while exports remained stationary, which showed a considerable improvement over the first six months of 1920.

FINANCE. The table on page 190 gives the details for the budget estimates of 1921-22.

The national accounts for the fiscal year of 1921 showed a deficit of more than 106,000,000 crowns, which was covered by drawing cash from the treasury, the funds of which were thus reduced from 352,000,000 to 246,000,000 crowns. The proposed budget for the next fiscal year also showed a deficit which was estimated at approximately 61,000,000. This, however, was likely to be considerably cut down by income from new taxes, designed to replace those extraordinary wartime taxes, which, on account of the prevailing stringent economic conditions, had ceased to yield. On August 1, 1921, Denmark's national debt amounted to 1,074,000,000 crowns, of which 670,000,000 was internal and 404,000,000 external debt. As compared with

<i>Current revenue</i>	<i>Kroner</i>	<i>Current expenditure</i>	<i>Kroner</i>
Balance of domain revenues.....	1,681,623	Civil list and appanages.....	1,222,000
Balance of State undertaking.....	893,120	Rigsdag.....	3,000,000
Interest on outstanding debt.....	6,102,410	Interest and expenses on State debt.....	39,936,400
Balance of funds, etc.....	631,898	Council of State.....	437,884
Direct and indirect taxes.....	304,878,255	Ministry of Foreign Affairs.....	3,075,005
Balance of lotteries.....	1,420,460	Ministry of Ecclesiastical Affairs.....	3,351,359
Separate revenues.....	4,545,557	Ministry of Public Instruction.....	64,751,346
		Ministry of Justice.....	38,594,094
		Ministry of Interior.....	43,623,650
		Ministry of Agriculture.....	10,619,583
		Ministry of War.....	45,142,788
		Ministry of Marine.....	28,200,000
		Ministry of Finance.....	23,616,790
		Ministry of Public Works.....	4,083,619
		Ministry of Commerce and Navigation.....	4,325,927
		Pensions.....	11,337,480
Total revenue.....	318,367,083 (17,687,060.)	Total expenditure.....	325,317,935 (18,073,218.)

March 31, 1920, this showed an increase of 48,-000,000 crowns, the total debt on that date amounting to 926,000,000 crowns, with 872,-000,000 and 254,000,000 representing the internal and external debt, respectively.

COMMUNICATIONS. Shipping is the most important phase of Danish transportation, and in bringing up the country's credit balance in world trade, the merchant marine plays a very important part. The Danish merchant fleet at the end of 1920 consisted of 761 ships, with a total of 868,426 tons, which, when compared with 1914 figures, shows a reduction in the number of ships of 4.3 per cent, but an increase in the actual tonnage of 10.7 per cent. The net increase during 1920 was 49 ships, with a total tonnage of 136,471 tons, of which Danish shipyards contributed 65,629 tons. During the first half of 1921 the Danish merchant marine showed a gross increase of 23 ships, with a total of 35,410 tons and a decrease of 17 ships, totaling 14,895 tons, leaving a net increase during this period of 20,515 tons. On July 1, 1921, 52 ships aggregating 102,175 tons were under construction in Danish shipyards. The shipping stagnation which began in 1920 and reached its extreme point in June, 1921, had a disastrous effect upon Danish shipping interests. The total idle tonnage, which on Jan. 1, 1921, amounted to 60,000 tons, in June, 1921, had increased to 350,000 tons, or about 40 per cent of the total tonnage. During July this was reduced to about 325,000 tons, and an agreement for reduction of wages arrived at in August tended to further cut down the amount of idle tonnage. Hopes based upon this slight revival of shipping were disappointed. Reduction in cost of operation and rigid economy in every phase of shipping was being resorted to in a determined effort to turn the tide. A fact worthy of notice in connection with the shipping stagnation was the continued operation of all Diesel motor-equipped vessels, which, on account of more economical operation, appeared to be able to successfully face the present situation.

The railway mileage in 1918 was 2635 of which 1283 belonged to the state. As compared with shipping, the railways play an insignificant part in Danish transportation. The principal railways are State owned and operated and are amply equipped to handle all traffic offered. Rolling stock, as well as roadbeds were reported as being in the very best condition. In spite of enormous rate increases put into effect during the past five years, the Danish railways were unable to balance their budgets. The railroad budget for the

financial year closing March 31, 1921, showed a deficit of 53,500,000 crowns. The estimated budget for the next fiscal year, however, was balanced, and slight rate increases were planned for the coming year.

Danish highways are on the whole excellent, and the mileage is remarkable when the size of the country is taken into consideration. There are about 30,000 miles of public roads in Denmark, of which about 66 per cent are partly graveled, 30 per cent macadamized, and 4 per cent paved. The constantly increasing automobile traffic is causing highway deterioration—unusual under the Danish road-repair system—which is doubtless aggravated by lack of attention during the war.

Although the geographical nature of the country makes unnecessary any extensive system of inland waterways, several canals were completed during the year, the most important being the Odense Ship Canal, which connects the third largest Danish city with the open sea. Other quite extensive projects were under consideration, including a canal which would eliminate the dangerous voyage around the northernmost point of Jutland.

DEFENSE. All males who have reached the age of 20 years are liable to military service for 16 years. The peace strength is placed at 78,000 men and war strength at 105,000. Denmark maintains a small fleet simply for coast defense.

GOVERNMENT. Executive power is vested in the king who acts through a ministry responsible to parliament and legislative power in the Rigsdag or diet consisting of the Folkething or lower house with 149 members and the Landsting or upper house with 75 members. The king in 1921 was Christian X (born Sept. 26, 1870). The ministry at the beginning of 1921 was as follows: Presidency of the Council and Minister of Finance, M. Neergaard; Foreign Affairs, Harald Scavenius; Interior, Sigurd Berg; Justice, Svenning Rytter; Defense, M. Berntsen; Public Instruction, Jacob Appel; Ecclesiastical Affairs, M. Christensen; Agriculture, Madsen Mygdal; Transport, M. Slesbager; Commerce and Navigation, Tyge Rothe.

HISTORY. German competition in the summer caused great disturbance in the Danish markets according to the Danish newspapers and the problem of unemployment was most serious, only a few industries remaining active and these employing only from three-fourths to one-sixth of their former working forces. German imports had practically destroyed the Danish tin-plate

industry. According to some authorities, however, the falling off of production was due generally to the tendency of the public to defer buying. A Danish trade delegation was sent to Stockholm in the middle of November for the purpose of negotiating a trade agreement between Denmark and the Soviet government but failed in consequence of the demands of the latter, which claimed the right to appoint representatives in Denmark other than Russian subjects. This was believed by the Danes to mean that Bolshevik leaders would be appointed from among them. There was also fear in Denmark of Soviet propaganda if a demand of the Russian government in respect to the free entry of Russian literature in Denmark was granted. President Harding appointed as minister to Denmark, Professor John Dyneley Prince, head of the department of Slavonic languages at Columbia University, known for many years as a linguist and especially as an Orientalist. He was prominent in New Jersey State politics where he had been president of the New Jersey State Civil Service Commission, Speaker of the New Jersey State Assembly, and President of the State Senate. The Arctic expedition of Rasmussen for the purpose of mapping the islands between Greenland and the American continent was going on during the year. See the article **POLAR RESEARCH**.

DENVER UNIVERSITY. An institution of higher learning at Denver, Colo.; founded in 1864. The enrollment in the university for 1921-22 was about 3500 and in the summer school of 1920 it was 562. The library contained about 50,000 volumes. Acting Chancellor, Wilber D. Engle.

DE PAUW UNIVERSITY. A co-educational institution of higher learning at Greencastle, Ind., under the auspices of the Methodist Episcopal Church; founded in 1837. In the autumn session of 1921 the students numbered 1126 and in the summer school 166. There were 24,000 volumes in the library and 11,754 in the department libraries. The net income for the year 1920 was \$294,748. A campaign for the collection of \$2,000,000 was begun in 1921. President, George Richmond Grose.

DESTROYERS. See **BATTLESHIPS AND OTHER WAR VESSELS**.

DETROIT, UNIVERSITY OF. An institution of the higher learning at Detroit, Mich., under the auspices of the Roman Catholic Church. In the fall session of 1921 the enrollment of students was 1305 of whom 679 were in Commerce and Finance; 275 in Law; and 236 in Engineering. The number of teachers on the staff was 165. The libraries contained 55,000 volumes. President, John P. McNichols, S. J., Ph.D.

DETROIT SYMPHONY ORCHESTRA. See **MUSIC, Orchestras**.

D'EU, COUNTESS. Daughter of the former emperor of Brazil, died in Paris, France, November 14. Before her marriage she was Princess Isabel de Braganza. She was born in 1846 and married the Count D'Eu, Oct. 15, 1864, having three sons by him. As regent of Brazil she signed the decree abolishing slavery.

DEUTSCH, GOTTHARD. Hebrew scholar, died at Cincinnati, Ohio, October 14. At the time of his death he was dean of the Hebrew Union College of Cincinnati. He was born at Kanitz,

Austria, in 1859, and took his doctor's degree at the Royal University of Vienna. Coming to the United States, he was made Professor of History in the Hebrew Union College, holding that chair for thirty years. One of his chief undertakings was an elaborate history of recent times from the Jewish point of view. For this purpose he made a vast collection of historical data which were preserved by means of a card index system, the material being made up of clippings from periodicals from 1850 down to the year of his death. The actual writing of the work was not completed. He wrote a number of treatises on history, religion, and language and also two novels. His linguistic talent was remarkable and it was said of him that he wrote equally well in English, Hebrew, French, and German. His name became prominent in 1905 owing to the refusal of the Russian government to grant him a passport because he was a Jew. Upon his appeal to President Roosevelt the Russian government was prevailed upon to grant him the passport. He interested himself in civic affairs, taking part in various public movements and serving on one occasion as a member of the Board of Education.

DIABETES. Under the fasting treatment so called of this disease it has been claimed that all but about six per cent of patients are capable of recovery, and that the disease has been robbed of its terrors. This seems far too roseate a view to take of so deep seated and chronic an affection, which has hitherto been looked on as almost surely fatal in time. There is indeed something sensational in the immediate results of the treatment, for not only does the sugar disappear from the urine, but the subject is seen to return to his daily vocation. But whatever the outcome of this management it is only necessary to glance at the census figures for 1920 which have recently been released for publication (Oct. 22, 1921) to note that as a social disease diabetes, so far from falling off in mortality, is actually increasing. In 1919 the total number of deaths from this cause in the registration area of continental United States was 12,683 while in 1920 the figure is 14,062. That this excess is not due to increase in population is shown by the ratio of deaths per 100,000 population; for while in 1919 this was 14.9, in the next year it had mounted to 16.1. The fasting treatment has now been in use for about seven or eight years although this is much too short an interval for it to become widespread. Many plain practitioners who have attempted to carry out the treatment in the patients' homes have made disappointing reports and it is evident that special sanitaria and hospitals are requisite to give the treatment a suitable tryout. Many diabetics die of so-called acidosis and the fasting treatment is especially suited to prevent this termination and consequently to extend the life of the individual patient. The failure of the benefits of the fasting treatment to show in the census figures may, in addition to reasons already alleged, be explained by the enormous multiplication of confectionery shops since the XVIII amendment went into effect. It had been predicted that extensive increased consumption of sugar would cause an increase of diabetes.

DICTIONARY. See **PHILOLOGY, MODERN**.

DIEDRICH, FRANZ. See **NECROLOGY**.

DIESEL ENGINE. See **INTERNAL COMBUSTION ENGINE**.

DIMITROFF, ALEXANDER. See NECROLOGY.

DIPHTHERIA. The use of the Schick test to determine which children are likely to develop diphtheria after exposure is regarded as a notable advance in the control of this affection. The children thus proved to be susceptible may be immunized against the disease. The only chance for a difference of opinion is in regard to immunization of the other children who are presumably insusceptible to the disease. Nothing is infallible in biology and in some cases the Schick law shows exceptional behavior. In some children's hospitals no attention is paid to preliminary Schick selection and the immunization is made universal. The immunizing substance is the combination of toxin and antitoxin with slight excess of free toxin. Rohmer and Levy, French pediatricists, advocate routine vaccination in this manner for all children somewhere between the 6th and 18th months. The disease has the greatest menace between the ages of 2 and 6 years. The authors recommend two prophylactic injections 10 days apart. It is of little use to immunize before the age of 6 months, for such young infants seldom contract the disease even on close exposure. After the age of two it is of course possible to immunize and so on through the entire period of susceptibility; it is in some ways of advantage to wait, for owing to the increased susceptibility between 2 and 6 years the dose need not be as powerful as that required before the age of 2 years. As a social problem it is of course best to immunize during the safe period, but if this has been exceeded and the child is in the unsafe period it is by no means too late, but quite the contrary. *La Presse Médicale*, Nov. 10, 1921.

DIRIGIBLES. See AERONAUTICS.

DISASTERS. See EARTHQUAKES; RAILWAY ACCIDENTS; FIRE PROTECTION; AUTOMOBILES, ETC.

DISCIPLES OF CHRIST. Founded in 1809, this denomination has had a rapid growth and is now the fifth largest Protestant body in the United States. Total membership for the world was 1,277,231 in 1921, or a gain of 34,568 over the previous year, and in the United States and Canada, 1,210,023 were enrolled. The Bible School enrollment for the world is shown as 1,063,890, a gain of 64,447. The churches throughout the world now number 9692. The total number of preachers in the United States and Canada was 6079, of which 304 are colored. The receipts, including gifts, permanent funds, etc., for a nine months' period, October, 1920, to June 30, 1921, were \$2,778,956.05, or an average of \$2.29 per member; of this amount, \$1,914,010.74 was applied strictly to missionary and educational work. The denomination is divided into four departments: the United Christian Missionary Society, Board of Education of the Disciples of Christ, Board of Temperance and Social Welfare, and the Association for the Promotion of Christian Unity. An International Convention has advisory relations with these departments in the administration of their various interests. Six departments, the American Missionary Society, Board of Church Extension, Board of Ministerial Relief, Christian Woman's Board of Missions, Foreign Christian Missionary Society, and the National Benevolent Association, comprise the United Christian Missionary Society, which has headquarters in St. Louis and carries on missionary and benevolent work at home and abroad. It is said

to be the most thoroughly representative religious organization in existence in that its 24 directors are divided equally between men and women. Foreign mission work is carried on in ten countries, Africa, China, India, Japan, Philippine Islands, Tibet, Mexico, Porto Rico, Jamaica, and South America, and missionaries numbered 275 in 1921. The work of the Department of Home Missions takes the form of church maintenance through states and provinces, Evangelism, Bible Chairs, French, Highlanders, Immigrant, Indian, Negro, Oriental, Regional, Rural, Spanish-American and Mexican, Recruitment and Training of Workers. Figures of the Board of Education of the denomination show that there were 7517 Disciple students, 80 in state universities, and 274 in 8 independent universities. In the 27 colleges and educational institutions maintained by the denomination alone there were 9561 students enrolled. The purpose of the Association for the Promotion of Christian Unity is to watch for every indication of and hasten the time of Christian unity. Numerous conferences were held throughout the year. The efforts of the Board of Temperance and Social Welfare have been directed toward strict enforcement of the Prohibition laws. Among the various publications of the denomination may be mentioned the *World Call*, *The Christian Evangelist*, *The Christian Century*, and the *Christian Standard*. Stephen E. Fisher, Champaign, Ill., is President of the International Convention; Graham Frank, Dallas, Texas, is general secretary. F. W. Burnham is President of the United Christian Missionary Society; H. O. Pritchard, is general secretary of the Board of Education; and Peter Ainslie is President of the Association for the Promotion of Christian Unity.

DOBRUJA. The name of the southeastern part of Roumania. Area about 8970 square miles; population (1912) 381,306 including Bulgarians, Roumanians, Turks, Tatars, Russians, Germans, and other races. Chief towns: Constantia (27,622); and Tulcha (22,186).

DOBSON, HENRY AUSTIN. British author, died, September 2. He was especially known as the author of light verse. He was born at Plymouth, England, Jan. 18, 1840, and educated at private schools in England and at the Gymnasium of Strasburg. For many years he held a government office being principal of the Board of Trade 1884-1901, when he retired and devoted himself exclusively to literature. Although his *Vignettes in Rhyme* (1873) and successive collections of poems and society verse gave him so extensive a vogue both in England and the United States that he was known especially as a verse writer, his work in literary criticism and literary history was perhaps a better title to permanent reputation. The other volumes of verse included *Proverbs in Porcelain* (1887); *Old World Idyls* (1883); *At the Sign of the Lyre* (1885). The publications of his collected poems began in 1897 and had passed through nine editions in 1913. His prose work included besides a great variety of articles for works of reference and magazines and many editions of classical and other writings, the following: *Thomas Bewick and his Pupils* (1884); *Lives of Fielding* (1883), *Steele* (1886), *Goldsmith* (1888), *Horace Walpole* (1890-1910), *William Hogarth* (1891, 1897, 1907), *Richardson* (1902), and *Fanny Burney* (1903); *Four Frenchwomen* (1890); *Eighteenth Century Vignettes* (three

series, 1892, 1894, 1896); *A Paladin of Philanthropy* (1899); *Side-Walk Studies* (1902); *De Libris* (1908); *Old Kensington Palace* (1910); *At Prior Park* (1912).

DOCA, R. C. See NECROLOGY.

DOCKS AND HARBORS. See PORTS AND HARBORS.

DODECANESIA or the DODECANESE. (Greek for 12 islands.) A group of islands off the southwest coast of Asia Minor acquired by Italy in the war with Turkey in 1912 and confirmed to her in the Treaty of Sèvres in 1920, but as that treaty was not ratified their status remained indeterminate in 1921.

DODGE, DAVID STUART. Presbyterian minister, former President of the Board of Home Missions, died in New York City, December 17. He was born in New York City, Sept. 22, 1836, graduated at Yale in 1857 and at the Union Theological Seminary in 1860. In 1864 he was ordained to the Presbyterian ministry and from 1899 to 1915 was President of the Board of Home Missions. He was also President of the board of trustees of the Syrian Protestant College.

DOHNÁNYI, ERNST. See MUSIC, Artists, Instrumentalists.

DOMINICA. See SEWARD ISLANDS.

DOMINICAN REPUBLIC or SANTO DOMINGO. A West Indian state occupying the eastern part of the island of Haiti or Santo Domingo, the larger portion being occupied by the republic of Haiti. Capital, Santo Domingo.

AREA AND POPULATION. The area is estimated at 19,332 square miles with a coast line of about 10,017 miles, and the population was estimated in 1919 at about 1,000,000. In 1918 the estimate was 955,159 but lower estimates are offered and in general the population is placed no higher than 600,000. The inhabitants are of mixed race, European, African, and Indian stocks prevailing, but there are some Creoles of pure Spanish blood. The language is Spanish but a Haitian dialect is spoken along the frontier and many of the American negro immigrants speak a corrupt English. The population of Santo Domingo according to the census of 1919 was 26,812. Other large cities with their recent population estimates are: Santiago de Los Caballeros, 14,744; San Pedro de Macoras, 10,000; La Vega about 8000; Puerta Plata, 7370.

EDUCATION. Primary instruction is free and compulsory. In 1920 the public schools numbered 972 with 1544 teachers and 105,000 pupils. In 1919-20 the expenditure on public instruction amounted to 943,880 dollars.

PRODUCTION. The chief source of wealth is agriculture, but stock-raising is important. Manufacturing is carried on only on a small scale. The chief crops are sugar, tobacco, and coconuts and their products. The chief industry is the raising of sugar cane. In 1920-21 the production amounted to 1,326,438 bags of 320 lbs. each as compared with 1,230,150 bags in 1919-20. In 1918 tobacco production amounted to 33,439,648 lbs. The average annual production of coconuts is about 1,500,000. The mineral resources are considerable and various including iron, coal, petroleum, silver, platinum, quicksilver, etc. The leading imports are cotton, iron, and steel manufactures, grain, bags, and sacks, etc., chemical products and soap. The chief exports are sugar, cacao, tobacco, coffee, and honey. Live stock,

May 15, 1921: Cattle, 647,158; horses, 162,800; goats, 655,571; hogs, 557,242.

COMMERCE. In 1919 the imports of merchandise were valued at \$22,019,127, and the exports, at \$39,601,892, a considerable gain over 1918, especially in respect to exports. The United States supplied 82 per cent of the imports and received over 61 per cent of the exports. The chief imports in that year were: Iron and steel manufactures; cotton and cotton manufactures; rice, and wheat flour; and the chief exports were: Raw sugar, cocoa, and tobacco.

FINANCE. The budget for 1919 was as follows: Revenue, 8,717,252 dollars; expenditures, 7,922,229 dollars. In 1920 the budget estimates were: Revenue, 12,000,000 dollars; expenditure, 8,160,000 dollars. The treaty with the United States of Feb. 8, 1907, authorized an issue of 20,000,000 dollars in five per cent bonds, secured on the customs revenue of the republic, and the United States President under this treaty appointed the general receiver of customs. The Guaranty Trust company of New York was made fiscal agent to provide a sinking fund for the service of the loan. At the beginning of 1920 the sinking fund amounted to 8,309,038 dollars. The public debt, July 31, 1920, was 13,100,786 dollars.

COMMUNICATIONS. The railway mileage in 1919 was 153, and there were besides about 255 miles of private line on the large estates. The two principal railway lines are that from the Bay of Samana to Santiago; and the Dominican Central, which runs from Puerto Plata to Santiago and Moca. The foreign trade shipping entered in 1919 was as follows: 344 steamships of 366,208 tons with cargo; 168 steamships of 186,064 tons in ballast; 164 sailing vessels of 23,713 tons.

DEFENSE. Aside from the American marines the only force consisted of the native constabulary officered by Americans (see preceding YEAR BOOK) which numbered 1150 and was divided into 14 companies.

GOVERNMENT. Executive power under the constitution of 1908 is vested in a president chosen by an electoral college for ten years and a cabinet of seven ministers; legislative power, in a national congress, consisting of a senate of twelve members and a chamber of deputies of twenty-four members. After the civil war of 1916 a military government under the United States was proclaimed (Nov. 29, 1916). Both the executive and legislative power was intrusted to United States naval officers under a military governor who at the beginning of 1921 was Rear-Admiral Thomas Snowden.

HISTORY. The president of the Dominican Republic, Henriquez y. Carvajal, appealed to the president of the United States to withdraw American military and political influence, April 12. On June 14 the President of the United States issued a proclamation, promising to withdraw the American force from the country within eight months if certain conditions were fulfilled, including the holding of orderly elections for a new governor, the ratification of the military government's acts, and the validation of the government loan. The special Senate commission appointed to investigate conditions in the Dominican Republic and Haiti under the chairmanship of Senator Medill McCormick of Illinois, reported on its return to Washington, on December 26, that

the political leaders had refused to accept the conditions laid down in the President's proclamation for the withdrawal of the American military government. The people acting on the advice of their leaders had refused to take any measure for the holding of elections in order to establish a government that could negotiate with the United States government on this proposal.

DOURINE. See VETERINARY MEDICINE.

DOWLING, MICHAEL JOHN. Banker, died at Olivia, Minn., April 25. He was born at Huntington, Mass., Feb. 17, 1866; removed to Minnesota in his boyhood, and lived there until the time of his death. He was a dealer in real estate after 1897, and became president of the Olivia State bank. He was speaker of the Minnesota house of representatives in 1901. In 1900 he served as a special commissioner to the Philippine Islands. In politics he was a Republican.

DRAGO, LUIS MARIA. Noted South American jurist, died at Buenos Aires, Argentina, June 9. He was the author of the doctrine of international law which was known throughout the world under his name. He was born in 1859 and first applied himself to criminal law and criminology, writing two works on that subject which gave him an international reputation. As Minister of Foreign Affairs he formulated the Drago Doctrine, mentioned above, presenting first his statement of it in his *Cobro coercitivo de deudas publicas* (1906). He was a member of the Peace Court at The Hague.

DRAINAGE. See RECLAMATION.

DRAKE UNIVERSITY. An institution of the higher learning at Des Moines, Iowa; founded in 1881. The student enrollment in the autumn of 1921 was 1507 of whom 414 were in the Liberal Arts College, 340 in the Fine Arts College, 322 in Education College; and in the summer term of 1921 there were 5708. There were 80 members of the faculty. The library contained 32,000 volumes. An observatory was built by the city of Des Moines in Waverland Park to be called the Drake University Municipal Observatory. President, Arthur Holmes, Ph.D.

DRAMA. AMERICAN AND ENGLISH. Seasons in the theatre do not begin on January 1 and end on December 31. Instead, they extend approximately from August 1 of one calendar year to May or the arrival of prohibitive heat in the next. Whatever general tendencies may be observed over a period of time are much more evident in the course of this natural season than in the one artificially fenced off by New Year's morn and the following New Year's eve. That fact was never more apparent than it is in the dramatic chronicle of 1921. The first half of the year, belonging normally with the season of 1920-21, fulfilled, both artistically and financially, the prospects set forth in this survey in the previous volume to the effect that it gave promise of becoming one of the most brilliant in recent years. And then, by one of those sudden reversals of the pendulum characteristic of all the arts but especially of the theatre, the latter half of the year, introductory to the season of 1921-22, brought a flood of worthless and nondescript plays above the wreckage of which the really meritorious productions had difficulty in raising their heads.

And yet, after we discount the more obvious fact that from August to December the number of failures roughly equaled the total number of pro-

ductions of the corresponding months of 1920, after we admit that these failures, most of them justly deserved, have had a depressing effect on all the activities of the stage, we are bound to recognize the persistence of those forces which made the previous season what it was and to acknowledge the existence of practically the same number of significant works which have been more or less fortunate in winning public approval. Except, therefore, for the theatrical economic depression, which gave few signs of abating in December, the state of our stage justifies sanguine hopes for the future. And it is even possible that one of the chief reasons for the wholesale failures of the autumn is the growth of a more exacting taste on the part of the theatregoing public.

Just as in 1920, the American stage far surpassed the British in variety, fecundity, and virility. A forward-looking spirit, a spirit of daring, of experiment, of desire to create and to comprehend new things, characterized the theatre this side of the Atlantic, while the British stage, with several notable exceptions, remained content with the ordinary, the mediocre, and the traditional. These few exceptions to the rule of time-worn fustian in London included Clemence Dane's *A Bill of Divorcement*, later to win an equal and deserved triumph in New York; the same author's *Will Shakespeare*, which had only a short run; Halcott Glover's *Wat Tyler*, a fresh treatment of historical material; a continuation of the previous season's unpretentious but effective revivals of the classics at the Old Vic, south of the Thames; and the tardy but ultimately hearty approval of Nikita Balieff's supercabaret from Moscow, *La Chauve-Souris* or *The Bat*. The coldness and petulance with which Bernard Shaw's great comedy *Heartbreak House*, was received, stands in striking contrast with the admiration it commanded in New York the preceding year and may be taken as an index of the comparative contemporary tastes of the two capitals.

The American theatre in 1921 was characterized by curiously contradictory tendencies, some of which were more clearly apparent in the earlier half while others emerged more definitely in the latter months. Among those tendencies may be named a restless and courageous experimental spirit among native artists and producing groups, a spirit which was not wholly stifled but appreciably retarded by such contrary aspects of the situation as a flood of plays from foreign sources amounting almost to an invasion, a financial depression more disastrous than any in recent years, and a consequent attempt to find foothold in precarious times by the revival of the outstanding successes of the last decade and a half.

The positive contribution of the year, therefore, was its urge to exploration. No new playwright of the first order was thereby revealed; no new producing groups of significance took the field; few new actors of great immediate promise were up-turned. And yet, not in one instance but in many, the guiding impulse was to break away from traditional themes and aesthetics and methods of administration and to set out in search of new ones. That these fresher substitutes for the time-worn and the familiar were seldom fully discovered and achieved, by no means discredits the attempt to find them. And if the impulse toward experiment be temporarily retarded by financial considera-

tions, it has been proved to be deeply enough rooted to forge ahead at the first opportunity.

Probably the most important and ambitious of these experiments was the attempt of Arthur Hopkins and Robert Edmond Jones to formulate a new æsthetic of the theatre, comparable with that which has made its way into the pictorial and plastic arts. In brief, they sought to replace representation with abstraction. The channel through which they chose to work, *Macbeth*, was not a happy choice. Originally written to be interpreted literally and encrusted with centuries of realistic tradition, it appeared before its spectators in its new guise with unfortunate handicaps and obstacles to unbiased judgment. Everyone was accustomed to conceiving the tragedy of blood-cursed ambition with backgrounds representative of castle walls and the actual rooms in which the story is unfolded. To ask them, instead, to watch the play against backgrounds depicting the moods and emotions of the several scenes, with bits of scenery and lights suggestive of these moods rather than of the actual locale, was too much. All other contributory causes of the failure—the unsteady realization of a new theory in several of the settings and the acting which was out of sympathy with that theory at every point—were subsidiary to this mistake in the choice of a medium for its expression.

What Hopkins and Jones should have done was to have taken a play or an action—or a pantomime, even—which had been composed by its author especially to be interpreted by abstract means. No matter how brief or how feeble that play had been, the new æsthetic would have been observed on its own merits and the public could have judged the results unhampered by resentment over the violence done to its fixed ideas. Still, the experiment shows which way the wind blows and gives promise of further revolutionary contributions to the art of the theatre comparable to those which have come from European stages in the last two decades.

While preëminent of its kind, the Hopkins-Jones *Macbeth* does not stand alone. Other experimenters toward a new theatre included The Provincetown Players, who enabled Susan Glaspell to explore the possibilities of native drama on social and economic themes in *Inheritors* and to search bravely though in vain for the super-sanity of insanity in *The Verge*; The Theatre Guild, whose production of Frans Molnar's *Liliom* brought to light a fresh and original dramaturgy and whose courage in mounting Arthur Richman's *Ambush* added a new and promising name to the brief list of our realistic playwrights; the Players' Fellowship, who, with Edith Ellis's dramatization of Karen Michaelis' *The Dangerous Age* under title of *The White Villa*, introduced a new manner of bringing plays before the attention of managers; and finally the arrival in exhibition if not yet in actual production on the stage, of two masters of scenic design comparatively new to us: Herman Rosse, of the Chicago Art Institute and formerly of The Hague, and Nikolas Roerich, of Petrograd.

As counterbalance to this virile spirit of experiment, the business depression which had made itself felt the year before on "the road" extended to New York with the opening of the new season in the fall. Judged by some to be the result of extravagant admission prices and by others as an indication of stricter standards on the part of the public,

it was rather, on the whole, a tardy reflection of general business conditions. One of its most manifest results was the wholesale revival of successes of former years, only a few of which stood the test of time.

No new native playwrights of the first order came to the fore, but Eugene G. O'Neill, the most significant discovery of the previous year, added to his repute with *Anna Christie* and *The Straw*, while his *Gold* was a credit to no one through a clumsy production. Zoë Akins, author of *De-classee*, moved forward a notch with her *Daddy's Gone a-Hunting*, but lost the gain with *The Varying Shore*. Gilbert Emery with *The Hero* shared the year's honors in realistic drama, apart from O'Neill and Miss Akins, with Arthur Richman and *Ambush*. In lighter vein, the most commendable work was done by Harry Wagstaff Gribble in *March Hares*, by George S. Kaufman and Marc Connelly in *Dulcy* and by William Anthony Maguire in *Six Cylinder Love*.

Foreign plays of significance outnumbered those of American authorship. Molnar's *Liliom* and Clemence Dane's *A Bill of Divorcement*, already mentioned, led the list in power and interest. Lennox Robinson achieved at least a *succès d'estime* with his rich and pungent comedy, *The White-Headed Boy*. W. Somerset Maugham profited by a notable cast in the interpretation of his shifty but brilliant play, *The Circle*. David Belasco wrought André Picard's *Kiki* into a richly amusing character study of a French street waif. William Archer, famed as a critic, added playwriting to his professions in the absorbing melodrama, *The Greep Goddess*. A. A. Milne, editor of *Punch*, was thrice discovered and thrice welcomed as a dramatist with the light-fingered comedies: *Mr. Pim Passes By*, *The Great Broxopp* and *The Dover Road*. And Harold Chapin, an American ex-patriate who lost his life in the British service, was happily commemorated with *The New Morality* and four short pieces in similarly antic vein: *Augustus in Search of a Father*, *It's the Poor as 'Elps the Poor*, *Muddle Annie* and *Innocent and Annabel*.

Among the American plays which commanded a substantial measure of critical or financial favor or both were: George Cram Cook's *The Spring*, an ambitious but one-sided study of psychic forces for propagandist purposes; Evelyn Scott's *Love*, a novelist's rather thin and undeveloped treatment of an interesting theme; Clare Kummer's *The Mountain Man*, a simple romance tinged with her subtle comedy, and a quartet of one-act plays from her pen: *Bridges*, *Chinese Love*, *The Choir Rehearsal*, and *The Robbery*; Rachel Crothers' studies of the errors of the younger generation, *Nice People* and *Everyday*; Vincent Lawrence's comedy of the interrupting memory of a dead husband, *The Ghost Between*; Augustus Thomas's melodramatic discovery of the dire possibilities from the misuse of finger-print evidence, *Nemesis*; Cloyd Head's exotic and highly stylized *Grotesques*; *Just Married*, an amusing but commonplace farce by Adelaide Mathews and Ann Nichols; Ernest Howard Culbertson's play of negro life, *Goat Alley*; Thomas P. Robinson's halting but frequently amusing comedy, *The Skylark*; *Getting Gertie's Garter*, a high pitched and unsavory farce of the "boudoir" type by Wilson Collison and Avery Hopwood; *The Nightcap*, a mystery farce-melodrama by Guy Bolton and Max Marcin, inferior to *The Bat*, which ran out the year as a hold-over from

the previous season; Owen Davis's shrewd but only partially successful attempt to profit by O'Neill's example in serious realistic drama, *The Detour*; Winchell Smith's play of life among the gamblers, *The Wheel*, and his study of small town life in collaboration with Tom Cushing, *Thank You*; Fannie Hurst's first venture into playwriting, *Back Pay*, a weak imitation of *The Easiest Way*; Aaron Hoffman's comedy of poverty and riches on the East Side, *Two Blocks Away*; Sidney Howard's florid mediæval tragedy in verse, *Swords*; Edward Milton Royle's dramatic version of Tennysonian legend, *Launcelot and Elaine*; A. E. Thomas's sentimental comedy of middle age, *Only 38*; William Hodge's comedy of egotism and canines, *Beware of Dogs*; Harvey O'Higgins' and Harriet Ford's dramatization of Sinclair Lewis's novel, *Main Street*; Booth Tarkington's fragile comedy that had a superb first act and thereafter went to pieces, *The Intimate Strangers*; *The Man's Name*, a tense but thin melodrama on the theme of the triangle by Eugene Walter and Marjorie Chase; *The Dream Maker*, a mystery melodrama devised by William Gillette for his own use in collaboration with Howard E. Morton; and Theodore Dreiser's courageous but futile propagandist tragedy, *The Hand of the Potter*.

Other native plays of less importance were: *The Champion*, by Thomas Loudon and A. E. Thomas; *Dear Me*, by Luther Reed and Hale Hamilton; *Wake Up, Jonathan*, by Hatcher Hughes and Elmer L. Rice; *The Teaser*, by Martha M. Stanley and Adelaide Mathews; *Honors Are Even*, by Roi Cooper Megrue; *Sonya*, by Eugene Thomas Wyckoff; *Nobody's Money*, by William Le Baron; *Pot Luck*, by Edward Childs Carpenter; *Lilies of the Field*, by William Hurlbut; *The Wren*, by Booth Tarkington; *Golden Days*, by Sidney Toler and Marion Short; *The White Peacock*, by Olga Petrova; and *Captain Applejack*, by Walter Hackett.

Still other inferior pieces included: *Pagans*, John Hawthorne, *Near Santa Barbara*, *Smooth as Silk*, *Survival of the Fittest*, *Clair de Lune*, *Sonny Boy*, *The Scarlet Man*, *The Triumph of X Personality*, *The Poppy God*, *Tarzan of the Apes*, *The Elton Case*, *True to Form*, *The Man in the Making*, *Wait Till We're Married*, *Like a King*, *A Bachelor's Night*, *As Ye Mould*, *The Six Fifty*, *The Great Way*, *The Skirt*, *The Demi-Virgin*, *The Mad Dog*, *We Girls*, *Nature's Nobleman*, *Marie Antoinette*, *Her Salary Man*, and *The Fair Circassian*.

The more notable importations from abroad in addition to those already mentioned included: John Drinkwater's *Mary Stuart*, considerably below the standard of his *Abraham Lincoln*; Georges de Porto-Riche's *Amoureuse*, known as *The Tyranny of Love*; Emile Moreau's *The Trial of Joan of Arc*; *A Sunny Morning*, by the Brothers Quintero; Granville Barker's pleasant but superficial play, *The Harlequinade*, written in collaboration with Dion Clayton Calthrop, and his talkative and outmoded realistic comedy, *The Madras House*; Emile Verhaeren's introspective drama, *The Cloister*; Cosmo Hamilton's *The Silver Fox*, freely adapted from the Hungarian of Ferenc Herczeg; Henri Bataille's sophisticated and uninspired *Don Juan (L'Homme à la Rose)*; Blasco Ibañez's novel of the bull ring, *Blood and Sand*, made into a play by Tom Cushing; Henry Bernstein's early character study of a French statesman fallen into moral decay, *The Claw*;

E. Temple Thurston's plodding but pictorial play, *The Wandering Jew*; Gustavo Morales' ballet-pantomime, *The Royal Fandango*; Michael Morton's spectacular melodrama, *In the Night Watch*; Sacha Guitrey's deft and amusing sentimental comedy *The Grand Duke*, in English version by Achmed Abdullah; Perets Hirschbein's Yiddish folk tale, *The Idle Inn*; and Sapper's highly diverting old-fashioned melodrama, *Bull Dog Drummond*.

Other foreign plays of slight importance included: *Transplanting Jean*, by de Flers and Caillavet; *Eyvind of the Hills*, by Johann Sigurjonsson; *Cradle Song*, by Gregorio Martinez Sierra; *Toto*, by Hennequin and Duquesnal; *The Mask of Hamlet*, by Ario Flamma; *The Blue Lagoon*, by Norman MacOwan and Charlton Mann; *Bluebeard's Eighth Wife*, by Alfred Savoir; *The Fan*, by de Flers and Caillavet; *The Children's Tragedy*, by Carl Schoenherr; *The Right to Strike*, by Ernest Hutchinson; *The Tills*, by Arnold Bennett; *The Wife with a Smile*, by Denys Amiel and Andre Obey; *Boulevard*, by Georges Courteline; *Danger*, by Cosmo Hamilton; and *Face Value*, by Sabatino Lopez.

Revivals of plays produced in former seasons included: *The Yellow Jacket*, by Hazelton and Benrimo; *Peg o' My Heart*, by J. Hartley Manners; *The Great Adventure*, by Arnold Bennett; *Romance*, by Edward Sheldon; *The Servant in the House*, by Charles Rann Kennedy; *John Ferguson*, by St. John Ervine; *The Return of Peter Grimm*, by David Belasco; *The Easiest Way*, by Eugene Walter; *Bought and Paid For*, by George Broadhurst; *Alias Jimmy Valentine*, by Paul Armstrong; *The Squaw Man*, by Edward Milton Royle; *Trilby*; *The Playboy of the Western World* and *The Well of the Saints*, by John Millington Synge; *The Married Woman*, by Chester Bailey Fernald; *The Moon of the Caribbees*, by Eugene G. O'Neill; *Trifles*, by Susan Glaspell; and the musical plays, *The Merry Widow*, by Lehár and *The Chocolate Soldier* by Straus. Shakespeare was offered in revival by Julia Marlowe and E. H. Sothern, by the Armfields, by Walter Hampden and by Frits Leiber, in addition to the Hopkins *Macbeth*, considered at length above.

Musical comedy, as usual, had a large place in the year's productions, but the only outstanding and meritorious examples were the *Music Box Revue*; *Blossom Time*, made from the songs of Franz Schubert; and *Shuffle Along*, staged and performed wholly by negroes.

DRAPER, W. H. See NECROLOGY.

DRUM, WALTER. Roman Catholic priest and educator died at Baltimore, Md., December 10. From 1908 to the time of his death he was professor of scripture in Woodstock College, Md. He was born at Louisville, Ky., Sept. 21, 1870; graduated at Boston College 1890 and studied at Woodstock College, Md., and at Jesuit colleges in Austria and in the Near East. In 1904 he was ordained priest, and he was made professor of scripture in September, 1908. He wrote: *Pastoral Medicine* (1905); *Pioneer Forecasters of Hurricanes* (1905); and *Divinity of Christ* (1917).

DRUMMOND, ANDREW L. See NECROLOGY.

DUBOST, ANTONIN. French historian and President for fourteen years of the French Senate, died in Paris, April 15. He was born in 1844 and for a time contributed to the press. After holding local offices he became Councilor of State in 1879 and he was Minister of Justice in 1893-94. He

became Senator in 1906 and was elected President of the Senate. He was anti-Catholic in politics and attacked the teaching of the Catholic clergy as tending to influence their pupils against the Republic. Among his historical works may be mentioned: *Les suspects in 1858* (1867); *Les conditions du gouvernement en France* (1879); *Danton et la Politique contemporaine* (1880); *Danton et les massacres de septembre* (1885).

DUCIE, HENRY JOHN MORETON, EARL OF. See NECROLOGY.

DUNKERS or DUNKARDS. See BRETHREN, CHURCH OF THE.

kilograms; of cacao (Java, 1919), 1,019,729 kilograms. The government tin mine of Banca and others yielded in 1919 20,724 tons. The yield of the principal coal mines in Java, Sumatra, and Borneo in 1919 was 947,915 tons. Petroleum and other mineral oils (1919) came to 1,764,203,000 kilograms. Gold, silver, diamonds, copper, and manganese are mined. In 1919 the lands belonging to the companies had an acreage of 4,603,690 acres of which 2,816,733 acres were in Java.

COMMERCE. Government and private trade, merchandise and specie, are given below for 1918 and 1919 in guilders.

Year	Merchandise	Government specie	Total	IMPORTS		Total	Grand total
				Merchandise	Private specie		
1917.....	20,361,000	1,600,000	21,961,000	467,019,000	7,705,000	474,724,000	496,685,000
1918.....	28,369,577	3,050,014	31,419,591	530,415,870	5,968,390	536,384,170	567,803,761
1919.....	101,692,487	11,708,840	113,401,327	639,029,401	40,802,497	679,831,898	793,233,225

Year	Merchandise	Government specie	Total	EXPORTS		Total	Grand total
				Merchandise	Private specie		
1917.....	1,670,000	149,000	1,819,000	785,110,000	6,300,000	791,410,000	793,229,000
1918.....	3,710,837	.....	3,710,837	675,900,331	232,718	676,133,049	679,843,886
1919.....	5,224,227	.....	5,224,227	2,162,116,836	130,455	2,162,246,291	2,167,470,518

DUNLOP, J. S. Inventor of the celebrated pneumatic tire, died at Dublin, Ireland, October 23. He was born in 1840. He conceived the idea of the pneumatic tire in order to facilitate travel on the primitive bicycle over the cobblestone streets.

DUPIN, M. A. Former president of the consistory died at Tours, France, in December. He was born in 1839. He was the author of historical works on the subject of Protestantism in Touraine. At the time of the separation of the Church from the State he took a prominent part in the councils of the Reformed Evangelical Church.

DUPRÉ, MARCEL. See MUSIC, Artists, Instrumentalists.

DUTCH EAST INDIES. A possession of the Netherlands in the Pacific ocean, consisting of islands situated between 6° N. and 11° S. latitude and between 95° and 141° E. longitude. Capital, Batavia.

AREA AND POPULATION. The islands comprise two main divisions: First, Java, consisting of seventeen residences, including the neighboring island of Madura or Madoera; second, the Outposts, consisting of seventeen provinces. The area is estimated variously at from 683,000 to 735,000 square miles, and the total population according to the official estimate of Jan. 1, 1918, 47,000,000. The populations of the four principal towns in 1918 were: Batavia, 234,697 of whom 24,000 were Europeans; Soerabaya, 160,801; Soerakarta, 137,882; Samarang, 106,852. By races the population was distributed as follows: Natives, 46,232,127; Orientals, chiefly Chinese and Arabs, 832,667; Europeans, 138,875.

PRODUCTION. Area (end of 1919) under rice, 8,465,269 acres; corn, 4,784,086; cassava, 1,794,193; areachis, 428,554; soya beans, 391,577; other secondary crops, 1,348,952; sugar cane, 35,189; tobacco, 245,795; indigo, 13,303; capsicum, 13,359. Government coffee plantations in 1919 produced 1854 tons and private plantations produced 53,815 tons; tobacco in 1919 (Java) 38,956,435 kilograms (Sumatra) 5,785,861 kilograms; a total of 44,742,296. Cinchona in kilograms amounted to 7,772,164. The production of tea in the country for 1919 was estimated at 40,392,323

The chief imports according to value in 1918 were: Rice, coal, manufactured articles, and kerosene. The chief exports were: Sugar, coffee, tea, indigo, cinchona, copra, tobacco, copper, and tin.

COMMUNICATIONS. Railway mileage at the beginning of 1920 was 3923, of which 3130 were in Java and 793 in Sumatra. The steamships entered in 1919 numbered 8500 of 4,424,819 tons; and the sailing vessels, 6558 of 418,260 tons. Of these 5969 steamships of 1,389,937 tons and 4676 sailing vessels of 273,421 tons were British.

FINANCE. The revenue and expenditures in guilders for 1920 were as follows: Revenue, 525,923,042; expenditures, 718,561,812; for 1921, revenue, 718,796,156; expenditures, 780,239,373. The public debt, Jan. 1, 1920, was 426,508,102 guilders.

GOVERNMENT. The territory consists partly of lands under the direct government of the Netherlands and partly of subject native states. The chief executive is the governor-general aided by a council of five members, both the governor-general and the council being nominated by the crown. The governor-general has the right to pass laws for the administration of the country subject to the legislation of the Netherlands. Governor-general at the beginning of 1921, Dr. D. Fock.

DUTCH GUIANA or SURINAM. A Dutch possession on the north coast of South America, bounded on the north by the Atlantic ocean, and on the east by the River Marowijne which separates it from French Guiana, and on the west by the River Corantyn which separates it from British Guiana; area 46,060 square miles; population, Jan. 1, 1920, 109,810 exclusive of negroes and Indians living in the forests. Capital, Paramaribo, with a population of 36,038. Movement of population in 1919 was: Births, 2593; deaths, 2888. In 1919 there were 33 public schools with 3835 pupils, and 42 private schools with 7020 pupils. There was also a government normal school. At the end of 1919 the religious denominations according to the number of adherents were: Moravian Brethren, 23,927; Roman Catholics, 19,319; Hindus, 21,500; Mohammedans, 15,431; Reformed and Lutheran, 9594. Sugar

production in 1919 amounted to 7,580,512 kilograms; cacao, 1,318,269 kilograms; bananas, 480,438 bunches; coffee, 1,282,954 kilograms; rice, 11,388,405 kilograms; corn, 1,430,155 kilograms; rum, 706,422 litres; and molasses, 173,705 litres. Imports in 1919 amounted to 6,946,144; exports, 8,987,870. The chief exports in 1919 were sugar, rum, and cocoa. The principal countries of destination for the exports in 1919 were in their order: The Netherlands, United States, British Guiana, and French Guiana. At the head of the government is a governor aided by a council, both appointed by the crown. Governor at the beginning of 1921, Baron van Heemstra.

DUTCH LANGUAGE. See PHILOLOGY, MODERN.

DUTCH REFORMED CHURCH. See REFORMED CHURCH OF AMERICA.

DUTCH WEST INDIES. This term includes the Dutch possessions in the West Indies, namely, DUTCH GUIANA and CURAÇAO. See these titles.

DVORAK, MAX. See NECROLOGY.

DYE STUFFS. See CHEMISTRY, INDUSTRIAL.

DYNAMO-ELECTRIC MACHINERY. While the prevailing industrial depression confined the activities of builders of this class of machinery to a small volume of business, notable progress marked the year in the application of electric motors to the newer uses, such as that of ship propulsion. In addition to the U. S. battleship *New Mexico* (see YEAR BOOK, 1919) the electrically propelled battleships *Maryland* and *Tennessee* were put in commission toward the end of the

year. Of four 1640-ton Coast Guard Cutters authorized by the Government and under construction, one, the *Tampa*, was completed and placed in service. The propelling machinery of these vessels was a 46-pole, 3-phase, synchronous motor designed to deliver 2600 h.p. to the main shaft at 130 revolutions per minute and give the ship a speed of 16 knots. The motor was supplied with energy by a direct-driven Curtis turbo-generating unit having a capacity of 2040 kw. at 2300 volts. Some smaller vessels, such as yachts, and two ferryboats were also equipped with similar systems of propulsion, employing either a steam turbine or a Diesel engine to drive the main generator.

Electric motors for operating the machinery of rolling mills were slowly but surely displacing steam engines for similar service; and at one large steel mill, a 7000 h.p. motor built by the Westinghouse Electric & Manufacturing company was put in regular service driving a three-high roll train and gave excellent satisfaction. As regards generating units, there were no spectacular examples of large machines, such as had characterized progress in recent years; but most of those built for large stations were of 35,000 kw. capacity or over. The equipment of the Hell Gate Station, on East river, New York City, which was under construction during the year, included very large units and was laid out with the ultimate idea of its inclusion as an integral part of the proposed Super Power System. See (ELECTRIC POWER, TRANSMISSION OF.)

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EARLE, LAWRENCE CARMICHAEL. See NE-CROLOGY.

EARTHQUAKES. In January a severe earthquake occurred (January 2) at Elbassan in Albania, killing 14 persons, injuring 300, rendering about 10,000 homeless, and almost completely destroying the city; and shocks were felt in the San Gabriele Valley of southern California (January 8); at Willows, Calif. (January 13); at San Diego, Calif. (January 17); near Corinth and Lake George, N. Y. (January 19 and January 27); at Philadelphia, Pa., and Trenton, N. J. (January 28). In February, shocks were reported on the isthmus of Tehuantepec (February 3); in Salvador and Guatemala (February 19); in March at Fairbanks, Alaska (March 12); Danville, Ill., and Terre Haute, Ind. (March 14); at Chileito in the province of La Rioja, Argentina (March 15); at Syracuse, N. Y. (March 30). Other shocks occurred at Los Angeles, Calif. (April 21); in Jalisco, Mexico (May 14); at Santa Cruz, Calif. (June 11); at San Francisco, Calif. (July 24); at New Canton, Va. (August 7); at Los Angeles, Calif. (September 3); at Riverside, Calif. (September 10); at Elsinore, Utah (September 29-30); at Harrisburg, Ill., and in Nicaragua (October 1).

EAST AFRICA PROTECTORATE (known since 1920 as **KENYA COLONY**). A British dependency organized as a crown colony, July 20, 1920, extending from the former German colony of East Africa to Abyssinia and Italian Somaliland and from the Umba river to the Juba river and reaching inland as far as the borders of Uganda. It is divided into eight provinces and includes in addition a tract of territory not as yet completely organized, lying to the north. It also includes some of the lands of the Sultan of Zanzibar which were leased to Great Britain. The provinces with their respective capitals are as follows: Seyidie (capital, Mombasa); Ukamba (Nairobi); Tarnaland (Lamu); Jubaland (Kismayu); Kenya (Nyeri); Naivasha (Naivasha); Nyanza (Kisumu); Northern Frontier District (Moyale). The area of the protectorate is 246,822 square miles, and the population, estimated in 1919, was 2,807,000, including 5362 Europeans and 1700 Asiatics. Arabs and Swahilis predominate on the coast, and races speaking the Bantu languages along with certain non-Bantu tribes, including Somali, Masai, and Gallas, inhabit the interior. The chief town is Mombasa with a population of about 30,000. It is the terminus of the Uganda railway. The capital, Nairobi, had a population estimated in 1919 at 14,000 of whom 800 were Europeans and 3000 Indians. The agricultural products in the low regions include: Rice, corn, cassava, coconuts, etc.; and in the highlands, wheat, oats, barley, and other products of the temperate zone. There are valuable forests in the highland area lying to the west and north of Nairobi containing: Cedar, camphor, cork, ironwood, etc. Gold, graphite, marble, opals, diatomite, and other minerals have been found, but mineral resources have not been fully explored. The following table from the *Statesman's Year Book* of 1921 shows imports, exports, and tonnage entered and cleared for three years:

Years	Imports	Exports	Tonnage entered and cleared
	£	£	
1916-17.....	3,024,123	1,613,853	1,441,877
1917-18.....	2,809,681	1,741,939	1,170,472
1918-19.....	3,397,810	2,498,574	922,653

The chief imports in 1918-19 were: Cotton piece goods; spirits, wines, and beer; provisions; sugar; tobacco, cigars, and cigarettes; and vehicles. The largest share came from the United Kingdom and other British possessions. The other chief exports in 1918-19 were: Cotton, carbonate of soda, fibres, coffee, hides, and skins. The United Kingdom received the largest share of the exports. The budget estimates for the year ending Dec. 31, 1922, were as follows: Revenue, £1,718,244 (\$8,361,835); expenditure, £2,130,861 (\$10,369,835). Nearly all the items of revenue showed a decrease of about one-third from the 1921 estimates, and owing to the general trade depression the returns from the taxes seemed likely to be reduced. It was proposed in the summer that a loan be floated of \$45,000,000 for public works, especially for harbor developments and railways. The Uganda railway, 618 miles in length, is owned by the state. During the year it was reported that a decision had been reached as to the new railway line to be built from Nakuru on the Uganda railway, Kenya Colony, Africa, to Turbo, a distance of 148 miles. The construction work to be done by British contractors would involve a total amount in the neighborhood of \$10,000,000. The new line was designed to provide transportation for a large agricultural community and was also likely to prove an important feeder to the Cape-to-Cairo railway.

The selected route chosen would bring the highest point of this line 9135 ft. above sea level. The maximum gradient was to be 1.5 per cent and the maximum curvature about 10°. Fifty-pound rails were to be used and maximum train loads will vary from 204 to 428 long tons. The new line will probably be one meter gauge.

The colony was placed under a governor and a commander-in-chief, Nov. 9, 1908, a previous decree having established an executive and a legislative council. In July, 1919, it was provided that the legislative council should consist of eleven members elected by the Europeans, two representatives of the Indians, and one of the Arab population, and a large enough number of official members to constitute a majority. The name was changed to Kenya Colony, August 13

1920. Governor and commander-in-chief, at the beginning of 1921, Major General Sir E. Northey.

ECONOMIC ASSOCIATION, AMERICAN. See **POLITICAL ECONOMY.**

ECUADOR. A South American republic on the Pacific coast between Colombia on the north and Peru on the south. Capital, Quito.

AREA AND POPULATION. Area, estimated at 116,000 square miles but uncertain owing to the boundary dispute with Peru which had not been settled. Population (1903), 1,323,590; estimated (1915), 2,000,000. Quito, the capital, has an estimated population of 70,000. Other large cities: Guayaquil, estimated in 1919, 93,851; Cuenca, 50,000; Riobamba, 18,000.

EDUCATION. Primary education is free and compulsory for children beginning with the sixth year. The Minister of Public Instruction presented to the Congress in 1921 a report showing the following figures for primary schools: Number receiving government funds, 1395, pupils, 75,110; municipal schools, 182, pupils, 13,143; private schools, 139, pupils, 15,091; total number of schools, 1716; total number of pupils, 103,344. The courses given in public schools, with the exception of the normal schools, are entirely dependent on the decision of autonomous school boards. Institutions of higher education include: The Central University at Quito; the Guayas University in Guayaquil; the Azuan University in Cuenca; and the law college at Loja.

PRODUCTION. In the coast regions and lower river valleys tropical farming is carried on while in the highland regions and mountain valleys, hay, grain, fruits, vegetables, and other products of the temperate zone are raised and the latter regions are suited to grazing and dairying. Coconut is the staple product, the production in 1919 being 22,474 cwts. There is a considerable production of coffee which is also exported, and rubber production is important. Gold and silver are found and petroleum is worked in the region of Santa Elena. The greater part of the country is under forests which abound in valuable woods, including dyewoods and cinchona trees. The making of Panama hats is an industry which is carried on almost exclusively in Ecuador.

COMMERCE. The foreign trade in 1919 according to a British authority was as follows: Imports, £2,426,901; exports, £4,316,769. The chief imports were woven goods, foodstuffs, machinery, and clothing and the chief exports were, cocoa, ivory, nuts, hats, coffee, and hides. The total estimated exports of Ecuador for 1921 are given in the following table:

Articles	Price per quintal, sucres	Maximum quantity, quintals	Value, sucres
Cacao.....	18	1,000,000	18,000,000
Tagua.....	4	300,000	1,200,000
Coffee.....	12	40,000	480,000
Hides.....	6	40,000	240,000
Rubber.....	15	7,000	105,000
All other exports.....	—	.....	1,500,000
Total.....	—	.....	21,525,000

The imports into Ecuador during 1921 of foodstuffs and articles required were estimated at 5,000,000 sucres (1 sucre equals \$0.4867 normal

exchange, or \$0.30 present exchange), and this added to the 29,476,525 sucres due in bank drafts' with the 6,000,000 sucres owed by the Agricultural Association to the Mercantile Bank of the Americas, amounted to a grand total indebtedness of 40,476,525 sucres at the end of 1921. The assets of the nation were therefore 21,525,000 sucres and its liabilities 40,476,525 sucres, making a trade balance against Ecuador at the end of 1921 amounting to 18,951,525 sucres. No account is taken in the above estimates of the nation's income from internal revenues.

FINANCE. Of the revenue about 70 per cent comes from the customs duties. The budget estimates of 1920 balanced at £1,999,566 and for 1921 at £2,028,570.

COMMUNICATIONS. There is a railway from Duran to Quito, 280 miles in length. The total mileage in 1917 was 365. Almost all the shipping enters the port of Guayaquil. In 1918, 160 steamships entered with 195,958 tons and 153 cleared with 181,537 tons.

GOVERNMENT. The executive power is vested in a president elected for four years, directly by the people and legislative power in a congress consisting of two houses, namely, the Senate with 32 members elected for four years and the House of Deputies with 48 members elected for two years, by adults able to read and write. The president is assisted by a cabinet of five ministers representing the following departments: Foreign affairs, interior, public instruction, finance, and war. President at the beginning of 1920, Dr. Jose Lewis Tamayo.

EDUCATION. See sections so entitled in articles on foreign countries, and States of the United States; also **AGRICULTURAL EDUCATION; EDUCATION IN THE UNITED STATES; LITERATURE, ENGLISH AND AMERICAN; UNIVERSITIES AND COLLEGES.**

EGERTON, Sir CHARLES COMYN. British soldier, died at Christchurch, Hants, England, February 20. At the time of his death he held the rank of Field Marshal. He was born in 1848 and came into prominence in 1896 when he commanded the Indian contingent at Suakim, winning the approval of the government and appointment as aid-de-camp to the Queen. Returning to India he was placed in command of a brigade on the frontier which did excellent work in putting down native revolts, and in 1901-02, as well as later, he led operations in punitive expeditions against the Waziris. He was subsequently in command for four years of the Punjab frontier force and in 1903-04 he conducted the successful operations in Somaliland which resulted in the defeat of the Mad Mullah, for which he received the G. C. B. In 1907 he was appointed by Lord Morley, Military Member of the Council of the Secretary of State. He retired in 1917.

EDUCATION IN THE UNITED STATES. STATISTICS OF ELEMENTARY AND SECONDARY SCHOOLS. ATTENDANCE. The Bureau of the Census has issued a preliminary statement giving statistics of school attendance for the various States as compiled from the Fourteenth Decennial Census taken as of Jan. 1, 1920. The total population 5 to 20 years of age, inclusive, in continental United States numbered 33,250,870. Of this number 64.3 per cent, or 21,373,976 had attended school at some time between Sept. 1, 1919, and

EDUCATION IN THE UNITED STATES 201 EDUCATION IN THE UNITED STATES

Jan. 1, 1920. As compared with similar conditions in 1910, there was an increase of 5.1 per cent in the number of such persons attending school.

The total population 7 to 13 years of age numbered 15,306,793. Of these 90.6 per cent, or 13,869,010 children were attending school. This was an increase of 4.5 per cent over the corresponding figures for 1910.

When it is recalled that the children 7 to 13 years of age are very generally subject to compulsory attendance laws of the various States, it is somewhat startling to realize that one child in ten in these ages is not in school, and that for the country as a whole 1,437,783 children were unaccounted for by the Federal Census on Attendance.

Among the geographic divisions having the largest percentage of their population 5 to 20 years of age, inclusive, enrolled or attending schools, the following rank highest: the Pacific

Division with 69.5 per cent; the West North Central Division with 68.5; and the Mountain Division with 68.4. The West South Central Division, with 58.7 per cent stood lowest. Then follows the South Atlantic Division, 60.2, and the East South Central Division with 60.9 per cent. The West North Central Division with 68.5 per cent has remained the same as in 1910. All the other divisions show considerable increase.

Among the individual States, the largest proportion attending school in the 5 to 20 age group is shown by Utah with 73.0 per cent, and the smallest by Louisiana with 53.0 per cent. For the 7 to 13 age group, the largest proportion of school attendance, 96.1 per cent, is that for Massachusetts, and the smallest, 75.9 per cent, for Louisiana. Seven States show a proportion of 95.0 per cent or more. These are Massachusetts, Rhode Island, Ohio, Iowa, Delaware, Idaho, and

SCHOOL ATTENDANCE, BY DIVISIONS AND STATES: 1920 AND 1910

DIVISION AND STATE	PERSONS 7 TO 13 YEARS OF AGE					
	1920			1910		
	Total number	Attending school	Per cent	Total number	Attending school	Per cent
<i>United States</i>	15,306,793	13,869,010	90.6	12,950,418	11,146,175	86.1
NEW ENGLAND:						
Maine.....	99,350	93,615	94.2	90,595	83,590	92.3
New Hampshire.....	55,158	51,544	93.4	50,891	48,314	94.9
Vermont.....	46,175	43,336	93.9	44,822	42,700	95.7
Massachusetts.....	483,762	464,752	96.1	401,970	385,813	96.0
Rhode Island.....	178,318	174,872	98.1	165,416	161,436	97.6
Connecticut.....	180,085	170,486	94.7	135,691	129,694	95.6
MIDDLE ATLANTIC:						
New York.....	1,307,158	1,226,918	93.9	1,101,098	1,032,247	93.7
New Jersey.....	426,665	404,928	94.9	324,367	300,367	92.6
Pennsylvania.....	1,242,638	1,174,140	94.5	1,014,906	936,817	92.3
EAST NORTH CENTRAL:						
Ohio.....	732,550	703,560	96.0	595,702	560,731	94.1
Indiana.....	389,445	369,713	94.9	359,434	335,541	93.3
Illinois.....	860,832	815,080	94.7	733,129	678,407	92.5
Michigan.....	477,976	453,652	94.9	366,556	345,005	94.1
Wisconsin.....	372,123	351,629	94.5	341,721	320,034	93.7
WEST NORTH CENTRAL:						
Minnesota.....	335,458	314,905	93.9	300,729	279,592	93.0
Iowa.....	325,918	309,744	95.0	312,845	291,643	93.2
Missouri.....	471,725	440,394	93.4	453,550	408,655	90.1
North Dakota.....	111,711	102,876	92.1	87,495	75,340	86.1
South Dakota.....	97,665	91,322	93.5	87,197	76,479	87.7
Nebraska.....	190,593	178,910	93.9	172,674	160,389	92.9
Kansas.....	255,474	241,531	94.5	238,929	220,546	92.3
SOUTH ATLANTIC:						
Delaware.....	28,707	27,336	95.2	26,422	22,977	87.0
Maryland.....	196,735	182,147	92.6	182,006	157,223	86.4
District of Columbia.....	41,665	38,962	93.5	34,402	31,101	90.4
Virginia.....	382,533	324,292	84.8	341,109	254,237	74.5
West Virginia.....	239,199	213,053	89.1	190,160	166,925	87.8
North Carolina.....	460,696	400,846	87.0	381,059	291,608	76.5
South Carolina.....	315,069	274,429	87.1	273,103	184,535	67.6
Georgia.....	517,974	409,754	79.1	451,408	318,189	70.5
Florida.....	151,641	126,189	83.2	116,635	82,198	70.5
EAST SOUTH CENTRAL:						
Kentucky.....	387,388	342,974	88.5	360,692	293,068	81.3
Tennessee.....	390,677	333,118	85.3	348,420	269,064	77.2
Alabama.....	428,939	344,699	80.4	366,911	243,275	66.3
Mississippi.....	328,372	263,130	80.1	315,472	238,013	75.4
WEST SOUTH CENTRAL:						
Arkansas.....	312,478	256,263	82.0	263,173	195,383	74.2
Louisiana.....	308,507	234,249	75.9	280,938	165,194	58.8
Oklahoma.....	355,225	304,665	85.8	273,646	235,528	86.1
Texas.....	779,222	652,476	83.7	663,927	510,100	76.8
MOUNTAIN:						
Montana.....	77,026	71,513	92.8	43,534	37,919	87.1
Idaho.....	68,198	65,102	95.5	46,449	40,606	87.4
Wyoming.....	26,465	24,554	92.8	16,231	14,406	88.8
Colorado.....	129,178	121,353	93.9	99,997	90,911	90.9
New Mexico.....	60,430	52,829	87.4	51,395	39,696	77.2
Arizona.....	48,479	38,179	78.8	27,159	19,483	71.8
Utah.....	74,957	71,611	95.5	58,551	53,644	91.6
Nevada.....	8,570	7,755	90.5	7,173	6,305	87.9
PACIFIC:						
Washington.....	171,819	162,750	94.7	132,146	120,345	91.1
Oregon.....	99,562	94,312	94.7	77,652	70,141	90.3
California.....	376,303	352,563	93.7	241,081	220,759	91.6

Utah. The New England Division, with 95.3 per cent, ranks first, while the West South Central with 82.5 ranks lowest. Three States—New Hampshire, Vermont, and Oklahoma,—show a decrease since 1910 in the percentage of persons 7 to 13 attending school.

FINANCES. With the increase in teachers' salaries and the higher costs of buildings and supplies, has come the problem of financing the public schools. The situation is serious in most places, but it is critical in several cities where long term bonds have been issued to meet current expenses.

In the face of these difficulties there has been a constant demand that the school expand its range of service. School systems have been made responsible for the conduct of kindergartens, junior high schools and vocational education when there has been no accurate knowledge as to the expense involved.

The American Council on Education has as-

sumed responsibility for a most thorough study of school finances. For this purpose a fund of \$170,000 has been guaranteed. A committee composed of several of the most competent school specialists has charge of the investigation. Dr. George D. Strayer of Teachers College, New York, is employed to direct the work.

ILLITERACY. No subject connected with education has received more attention during the past few months than that of illiteracy. It was first brought to the attention of the American people in a pronounced way by the illiteracy figures for the army. These were much higher than the illiteracy figures that were given in the 1910 census. The 1920 census shows an improvement of 1.7 per cent in our illiteracy problem. This, however, is not consoling when it is remembered that there are more than 5,000,000 persons in our population ten years of age or over who can neither read nor write.

ILLITERACY IN THE UNITED STATES

DIVISION AND STATE	POPULATION 10 YEARS OF AGE AND OVER					
	1920			1910		
	Total	Number	Per cent	Total	Number	Per cent
United States.....	82,739,315	4,951,905	6.0	71,580,270	5,516,163	7.7
NEW ENGLAND:						
Maine.....	621,233	20,240	3.3	603,893	24,554	4.1
New Hampshire.....	361,930	15,788	4.4	354,118	16,386	4.6
Vermont.....	284,472	8,488	3.0	289,128	10,806	3.7
Massachusetts.....	3,106,769	146,607	4.7	2,742,684	141,541	5.2
Rhode Island.....	483,788	31,312	6.5	440,065	33,854	7.7
Connecticut.....	1,087,797	67,265	6.2	901,026	53,665	6.0
MIDDLE ATLANTIC:						
New York.....	8,402,786	425,022	5.1	7,410,819	406,020	5.5
New Jersey.....	2,494,246	127,661	5.1	2,027,946	113,502	5.6
Pennsylvania.....	6,769,322	312,699	4.6	6,007,750	354,290	5.9
EAST NORTH CENTRAL:						
Ohio.....	4,624,456	131,006	2.8	3,848,747	124,774	3.2
Indiana.....	2,356,214	52,034	2.2	2,160,405	66,213	3.1
Illinois.....	5,184,643	173,987	3.4	4,493,734	168,294	3.7
Michigan.....	2,895,606	88,046	3.0	2,286,252	74,800	3.3
Wisconsin.....	2,069,567	50,397	2.4	1,829,811	57,769	3.2
WEST NORTH CENTRAL:						
Minnesota.....	1,877,132	34,487	1.8	1,628,635	49,336	3.0
Iowa.....	1,913,155	20,680	1.1	1,760,286	29,889	1.7
Missouri.....	2,737,771	83,403	3.0	2,594,600	111,116	4.3
North Dakota.....	470,210	9,937	2.1	424,730	13,070	3.1
South Dakota.....	482,195	8,109	1.7	443,466	12,750	2.9
Nebraska.....	1,012,552	13,784	1.4	924,032	18,009	1.9
Kansas.....	1,396,725	22,821	1.6	1,321,562	28,968	2.2
SOUTH ATLANTIC:						
Delaware.....	178,930	10,508	5.9	163,080	13,240	8.1
Maryland.....	1,158,953	64,434	5.6	1,023,950	73,397	7.2
District of Columbia.....	377,295	10,609	2.8	279,088	13,812	4.9
Virginia.....	1,748,868	195,159	11.2	1,536,297	232,911	15.2
West Virginia.....	1,083,395	69,413	6.4	903,822	74,866	8.3
North Carolina.....	1,844,673	241,603	13.1	1,578,595	291,497	18.5
South Carolina.....	1,219,316	220,667	18.1	1,078,161	276,980	25.7
Georgia.....	2,150,230	328,838	15.3	1,885,111	389,775	20.7
Florida.....	751,787	71,811	9.6	564,722	77,816	13.8
EAST SOUTH CENTRAL:						
Kentucky.....	1,837,434	155,014	8.4	1,722,644	208,084	12.1
Tennessee.....	1,770,762	182,629	10.3	1,621,179	221,071	13.6
Alabama.....	1,730,421	278,082	16.1	1,541,575	352,710	22.9
Mississippi.....	1,338,612	229,734	17.2	1,293,180	290,235	22.4
WEST SOUTH CENTRAL:						
Arkansas.....	1,302,905	121,837	9.4	1,134,087	142,954	12.6
Louisiana.....	1,366,066	299,092	21.9	1,213,576	352,179	29.0
Oklahoma.....	1,513,951	56,864	3.8	1,197,476	67,567	5.6
Texas.....	3,556,614	295,844	8.3	2,848,904	282,904	9.9
MOUNTAIN:						
Montana.....	421,443	9,544	2.3	303,551	14,457	4.8
Idaho.....	326,051	4,924	1.5	249,018	5,453	2.2
Wyoming.....	150,993	3,149	2.1	117,585	3,874	3.3
Colorado.....	747,485	24,208	3.2	640,846	23,780	3.7
New Mexico.....	267,595	41,637	15.6	240,990	48,697	20.2
Arizona.....	255,461	39,131	15.3	157,659	32,953	20.9
Utah.....	331,530	6,264	1.9	274,778	6,821	2.5
Nevada.....	63,905	3,802	5.9	69,822	4,702	6.7
PACIFIC:						
Washington.....	1,101,929	18,526	1.7	933,556	18,416	2.0
Oregon.....	638,987	9,317	1.5	555,631	10,504	1.9
California.....	2,870,855	95,592	3.3	2,007,698	74,902	3.7

The week of Dec. 4 to 10, 1921, was set aside for the celebration of American Education Week. The President issued a proclamation which called attention to the fact that there was so large a proportion of our population who were not availing themselves of our free school advantages, and that at the same time were unfamiliar with American ideals and traditions. The President likewise called attention to the fact that the future strength and security of this nation are much dependent on the education of these persons and their commitment to American ideals. Citizens were urged to give the matter special and thoughtful consideration. The subject was presented from the pulpit and by the press. Numerous meetings were held by various organizations. It is safe to say the educational authorities of the country are more thoroughly aroused by the subject of illiteracy than at any previous time in our history.

The census report shows that 1,242,572 native whites are illiterate. This is 2 per cent of our total native white population; 1,763,740 foreign born whites were illiterate, or 13 per cent of the total foreign born white population in the United States. Of the negroes, 1,842,161 were illiterate. This is 22.9 per cent of our total negro population. Upon the individual estates 11.6 per cent of the white population of New Mexico is illiterate. In Texas 33.8 per cent of the foreign born white population is illiterate, and of the negro population in Louisiana 38.5 per cent are illiterate. The illiterate population represented 6.0 per cent of the total ten years of age and over in 1920, the corresponding percentages for the last four preceding census years being 7.7 in 1910, 10.7 in 1900, 13.3 in 1890, and 17.0 in 1880. Connecticut is the only State that shows an increase in the proportion as well as the number of illiterates. Five States,—Montana, Idaho, Wyoming, Utah, and Washington, and the District of Columbia have only three-tenths of 1.0 per cent illiteracy.

AMERICANIZATION. Considerable attention has been directed toward Americanization. There is as yet no agreement as to the elements demanded by Americanization, but various agencies are at work in an effort to improve our citizenship through education.

The American Legion in their Third Annual Convention gave careful consideration to the reports and resolutions offered by the Americanism Committee. The plans suggested by this committee are among the best that have been formulated and may therefore be taken as indication of the education part of the scheme for Americanization. The following abstracts are taken from the report:

"Education in citizenship is the keynote of Americanism. The education must reach the adult as well as the child, native-born and foreigner alike. A knowledge of the draft statistics of the late war showed that 24.9 per cent of the men examined for the draft could not read English. This indicates a deplorable and dangerous menace to the nation's welfare. Although the various states have compulsory attendance laws, it is a matter of official record that of the 27,000,000 children of school age in the United States, but 15,000,000 are in daily attendance, and as a consequence the United States ranks only ninth among the civilized nations of the world in educational matters. We desire to impress most

strongly upon the various posts and departmental organizations of the Legion, and in particular upon the Chairmen of Americanism in the various state departments, that they do everything in their power not only to secure the enactment of laws to control this situation, but to see that such laws when enacted be strictly carried out.

"United States history and civil government are often taught only in a cursory manner in the public schools. Educational authorities should encourage such a full intimate study of these subjects as will develop in the child adequate respect and love for his country. A definite period should be devoted every week in public and private schools to appropriate patriotic exercises.

"In education for citizenship, thorough training in the fundamentals should be emphasized. Ideals of service and coöperation for the common good should be developed particularly in the children, in order to fit them for the responsibilities of modern industrial and political life. Civic playgrounds under proper directors are an exceedingly effective means of developing these ideals and educating children for citizenship, particularly among the foreign-born children. We strongly endorse such playground training and urge its extension.

"Referring to House of Representatives Bill No. 72, submitted April 26, 1921, with reference to the use of the English language in schools, it is the opinion of the Legion that for the words 'controlling medium of instruction' there should be substituted 'only medium of instruction.'

"It is a well known fact that the National Flag is often thoughtlessly treated with disrespect. It should never be used for advertising purposes. The American Legion urges that steps be taken to bring about a condition of affairs in all communities that will insure for the Flag due respect and consideration. The American Legion also suggests that in the twelve States where a law does not exist requiring the flag to be displayed daily during school hours over public school buildings, the Legion of those states do its utmost to have such laws enacted.

"Be It Resolved, that the American Legion favors the adoption of state laws requiring every teacher in every elementary and high school and every instructor or professor in every higher institution of learning, excepting those who are citizens of another country and only temporarily teaching in this country, to subscribe to an oath of allegiance to the Constitution of the United States and of the State where employed, and that we also favor a law permitting the cancellation of the certificate of any teacher found guilty of disloyalty to the government."

THE DALTON LABORATORY PLAN OF SCHOOL ORGANIZATION. During the past few years there have been a number of attempts to change our school organization so as to make it possible for individual pupils to progress at their own rate. A few of these plans have been sufficiently successful to bring them to the attention of large numbers of people in our country. The Dalton Plan is but little known among the school people of the United States. Yet, this particular plan has had a most pronounced influence in England. For a short period the Dalton, Massachusetts, High School experimented with a plan of individual progress among its students. One of the promoters of this

plan was Miss Helen Parkhurst of New York City. During the past summer Miss Parkhurst was in England. Her lectures in six installments were published in the *Times Educational Supplement*. It is reported that two thousand visitors made a pilgrimage to a school that had been experimenting with the new plan, and it is now claimed that several hundred English secondary schools have been organized according to this type.

According to the Dalton Plan, each student at the beginning of each month is given an outline of the work to be done in that subject over the period of the month, and he signs a written "contract" to cover this month's work, much as an adult would contract to do a given job. The pupil is then left with a large amount of freedom as to which subject he shall consider first and the ways in which he shall spend his time in the study of this subject. They study in special rooms called laboratories. These are equipped for each particular subject. The teacher is expected to assist upon call from the pupil. There is not, however, the ordinary type of recitation conducted in the school. The pupil assumes the responsibility for getting the work done on time.

EDUCATIONAL LEGISLATION. During the period of the war, the American public gained a conception of the influence that the public school might exert. As an aftermath the past year has developed an unusual attempt to force changes in the administration or in the curriculum of the schools.

One of the most noteworthy of these efforts was the passage by the New York State Legislature of an amendment to the Education Law in relation to the qualifications of teachers. The "amendment which is known as the 'Lusk Loyalty Law' provides that each teacher employed in the public schools of the State is required to obtain a certificate of qualification from the Commissioner of Education. Such certificate must state that the holder of it is a person of good moral character and that it has been shown to the satisfaction of the Commissioner that he is loyal and obedient to the government of this State and of the United States. It is expressly provided that no such certificate shall be issued to a person who advocates or has advocated in any manner the establishment of a form of government other than the present government of the United States or of the State of New York, or who advocated a change in the form of such government by force, violence, or any unlawful means. The bill requires the Commissioner of Education to ascertain the qualifications of the applicants for certificates. A certificate may be revoked by the Commissioner of Education."

The "Oath of Loyalty" prescribed by the Commissioner of Education provides that each teacher must take oath to the following statement: "That I am, have been and will be loyal and obedient to the government of this State and of the United States; that I have not while a citizen of the United States advocated, either by word of mouth or in writing, a form of government other than the government of the United States or of this State by force, violence or any unlawful means. I hereby apply for a certificate of qualifications, pursuant to Section 555-a of the Education Law, as inserted by Chapter 666 of the Laws of 1921."

The enforcement of this law has been somewhat bitterly resented by teachers. It is certain that an attempt will be made to have it repealed.

A similar law was passed by the Legislature of 1920 but was vetoed by the Governor.

The State of California has a new law that requires that in elementary, secondary, and normal schools there shall be "a course of study in fire prevention dealing with the protection of lives and property against loss and damage as a result of preventable fire." The aims and purposes of the course are defined as follows: (1) To create an understanding of the cause and origin of fires; (2) to emphasize the dangers of carelessness and neglect in homes and public buildings and the necessity of care in the use of fires; (3) to promote an interest in preventing fires and the protection of lives and property.

THE PLATOON SCHOOL ORGANIZATION. This form of school organization has been designed to meet the newer conditions that exist, especially in our large cities. It is extensively employed in the schools of Detroit and is gradually being introduced in the schools of other cities.

Typical platoon schools have 20 to 28 sections or classes of 40 pupils each. The buildings provide a gymnasium, an auditorium, open air play rooms, special rooms equipped for music, art, literature, science, and library, and "home rooms" which correspond to the usual class rooms. The following is a statement of the general plan of a platoon school:

The standard school day adopted is six hours long—a three-hour session in the morning and a three-hour session in the afternoon. The usual morning session is from 8:30 to 11:30, and the afternoon session from 12:30 to 3:30. Some schools have a somewhat longer noon hour. With the exception of pupils of the first grade and those especially excused, all pupils remain in school six hours and are busy during this entire period.

The school membership is divided into two groups or platoons. While one group is engaged in the "home room" or regular room, the other group is attending classes in the special rooms. Thus half of the pupils are in the "home rooms" at any given time and the other half are engaged in special activities. For "home room" activities the school day of six hours is divided into four periods of ninety minutes each. Each platoon has "home room" work for ninety minutes in the morning and ninety minutes in the afternoon.

For special room activities, the six-hour day is divided into twelve thirty-minute periods. Each platoon is engaged in special activities during six of these twelve thirty-minute periods each day.

Each individual pupil spends ninety minutes of the morning in the "home room" under the control of the "home room" teacher and the remaining ninety minutes of the morning in the special activities—spending thirty minutes in three separate special rooms. In the afternoon, he again spends ninety minutes in the "home room" and the remaining ninety minutes in three special rooms.

The number of special room activities possible in a platoon school is determined by the number of classes or groups of pupils involved.

If there are twenty classes involved, the school must house 800 pupils or 400 in each platoon. This requires ten "home rooms" to care for 400 pupils, while at the same time the remaining 400 pupils may be provided for in special rooms as follows: In the auditorium will be 80 pupils each, while 40 pupils will be in each of the sections in

the rooms set aside for music, art, literature, library, science, and 40 pupils will be on the playground.

The cost of buildings for the platoon schools is somewhat greater per pupil in the twenty section school and a little less in the twenty-eight section schools than in the traditional schools. The capacity of the school building is increased by more than 40 per cent by the platoon organization. The per capita cost of instruction remains about the same in both types of schools.

This plan of organization is also called the duplicate school and the work—study—play school plan.

FEDERAL BOARD OF VOCATIONAL EDUCATION. *Vocational Education.* The Fifth Annual Report of the Federal Board of Vocational Education covering the year from July 1, 1920, to June 30, 1921, shows that during this period the Federal Board cooperated with the States in the vocational training of 305,224 pupils in 3859 schools employing 9906 teachers. The pupils were divided among the different occupations as follows: Agriculture, 42,709, Trade or Industry, 83,532, Home Economics, 63,806, and part-time General Continuation Schools, 115,177. The pupils were divided 174,835 male and 130,389 female. Teacher training courses were maintained in 150 schools employing 1109 teachers and enrolling 14,755 students.

The Federal law permits the Board to cooperate with the States in maintaining evening, part-time, all-day, and part-time continuation schools. The all-day schools are most popular in the schools teaching agriculture, while the evening courses enroll the larger numbers in the trade or industrial schools and in the Home Economics schools. The largest enrollment is in the part-time continuation schools.

The total expense of the vocational training and teacher training given in the schools assisted by the Federal Board was in excess of eleven and one-half millions of dollars. The Board paid a total of \$3,366,603.54 divided as follows: Vocational agricultural education, \$1,192,644.73, vocational trade, industrial, and home economics education, \$1,204,560.12, and vocational teacher training, \$969,399.69. The Federal Board contributes about one-third of the expense incurred by the schools.

The States have at no time used all of the available Federal funds. The amount available for the current year is \$4,120,833.72, an increase of nearly \$500,000 over the year ending June 30, 1921.

REHABILITATION OF DISABLED SOLDIERS, SAILORS, AND MARINES. The Federal Board of Vocational Education was charged with the administration of the laws providing for the rehabilitation of disabled ex-service men from June 27, 1918, until August 9, 1921. A law approved on the latter date established the *Veteran's Bureau* and transferred the Rehabilitation Division of the Federal Board to that bureau.

The last report of the Federal Board presents the statistics for rehabilitation to August 15, 1921. The total number of disabled ex-service men and women who registered with the Federal Board was 404,396. After investigation 123,785 of those registered were dropped and 269,940 were found eligible for training. There was assigned to training a total of 235,993, while 33,947 remained un-

assigned and 10,671 awaited the determination of their eligibility.

Prior to August 15, 1921, a total of 116,298 persons had entered training, 54,409 were in process of induction, 43,842 had deferred training, and 20,969 had declined training. On this date 89,250 were in training, 5793 had completed their training, 2494 had discontinued the training of 18,823 had been interrupted, and 1938 were deceased.

Training with maintenance was provided for 155,616 men who were so disabled that they could not, in the judgment of the Federal Board, return to their former employment or be successful in any other employment without training. Training was provided free, without maintenance, for 80,377 men who were determined by the Bureau of War Risks to be 10 per cent or more disabled but not eligible for training with maintenance. This latter number also includes a small number who were in training in hospitals before being discharged.

In addition to the establishments where men were in placement training, 3026 educational institutions furnished training.

The Federal Board employed 6352 persons for rehabilitation purposes. The members of the staff included 2860 members while the clerks numbered 3492.

Among the courses taken by the men those concerned with business enrolled the largest number, next in order were those dealing with the mechanical trades, agriculture, and the professions.

The total appropriations for the rehabilitation service from the date of organization to August 1, 1921, were \$209,000,000. The expenses for the same period were \$145,902,457.45. The expenses for the fiscal year ending June 30, 1921, were \$95,981,225.62 of which \$9,063,154.75 was for administrative expenses.

VOCATIONAL REHABILITATION OF PERSONS DISABLED IN INDUSTRY OR OTHERWISE. The Federal act for vocational rehabilitation which became a law June 2, 1920, provides for cooperation of the Federal Government with the States in the vocational rehabilitation and return to remunerative occupations of persons disabled in industry or otherwise. The law provides for an appropriation of \$750,000 for the fiscal year ending June 30, 1921, and \$1,000,000 for each of the three succeeding fiscal years.

The provisions for the administration of the law are similar to those of the vocational act of 1917. The Federal Board of Vocational Education is charged with the administration of the law, and appropriations are to be apportioned to the States on the basis of population, no State to receive less than \$5000 as its allotment for any fiscal year.

The programme of rehabilitation in general use at present involves three processes: First, the selection of a suitable occupation; second, the preparation for that occupation; and third, the placing, including the follow-up, of the disabled person in that occupation.

The First Annual Report covers a period during which few of the States were in position to initiate the work under the Federal act until late in the fiscal year. The report shows that during the year ending June 30, 1920, all but twelve of the States had legally accepted the provisions of the Federal act. Prior to that date, 5619 cases had been listed, of these 2095 had been surveyed,

and 543 had been put in training. The States had rehabilitated 457 persons, 970 were self-rehabilitated, and 501 had been placed under supervision. The total expense was \$273,312.23 of which \$89,458.98 was from Federal funds and \$180,227.19 from State funds and the remainder from local funds and private contributions.

THE VISITING TEACHER. In every school system there may be found children who do not make satisfactory progress. They are not truants, because the well organized attendance divisions assure their presence in the school rooms, neither are they delinquents nor defectives. They are the victims of some type of maladjustment in the school system or home.

To meet the needs of children who are misfits various places are employing persons who have the title of visiting teachers or home and school visitors.

A visiting teacher locates the difficulties that may exist and then attempts to adjust conditions so as to enable the child to make more profitable use of the school.

The visiting teacher coordinates the efforts of the school, the home, and various independent agencies such as social settlements, civic organizations, parent-teachers associations and others of similar character.

The first visiting teachers, or home and school visitors as they are sometimes called, were employed during the school year 1906-07 in three separate places—Boston, New York, and Hartford, Connecticut. In each place the movement was supported by private funds.

At present there are visiting teachers in at least 28 cities in 15 States. The various cities now generally assume responsibility for the support and control of the work.

California is the only State thus far that provides for home and school visitors. The Home Teacher Act in that State "makes it permissible for boards of education to employ a home teacher for every 500 units of average daily attendance."

There is a national organization called the National Association of Visiting Teachers and Home and School Visitors with headquarters at 8 West 40th Street, New York City.

EGYPT. A British protectorate in northeastern Africa after Dec. 18, 1914, whose status was under discussion in 1920 and 1921 owing to proposals for modification in the direction of independence. Capital, Cairo.

AREA AND POPULATION. Total area of Egypt proper including the region between the Nile and the Red sea, the Libyan Desert, and the Sinai peninsula, but not the Sudan, estimated at 350,000 square miles. The cultivated area comprising the Nile valley and delta, is estimated at 12,226 square miles. The population according to the census of March, 1917, was, 12,750,918 exclusive of nomads; estimated July 1, 1919, 12,878,000. The movement of population in 1919 was as follows: Births, 493,507; deaths, 383,872. Egypt proper comprises the five governorships of Cairo, Alexandria, Damietta, the Canal District and the Suez District. The remainder of Egypt is divided into Lower Egypt and Upper Egypt, which are in turn, subdivided into six and eight provinces respectively. The population of Cairo in 1917 was, 790,939; Alexandria, 444,617; Port Said (including Ismailia),

91,090; Tanta, 74,195; Damanhur, 47,867; Asyut, 51,431; Mansura, 49,238; Faiyum, 44,400.

EDUCATION. Primary education is supplied by native elementary schools called *Maktabas* which in 1920 numbered 3632, with an enrollment of 228,997 pupils. There are, besides, higher primary and higher elementary schools, elementary training colleges for teachers, special and technical schools, secondary schools, etc. The total number of schools under the control of the provincial councils in 1920 was 3420, with 217,603 pupils and those directly under the management of the ministry of education had an attendance of 34,472. The following table taken from the *Statesman's Year Book* of 1921 shows the proportion of illiterates in the respective religious communities at the census of 1917:

Religion	Population	Number illiterate per 1000 *		
		Males	Females	Total
Moslems.....	11,658,148	901	937	919
Orthodox.....	854,773	739	920	830
Christians.....	155,168	505	556	531
Jews.....	59,581	482	642	562
Others.....	23,243	912	955	934
Total.....	12,750,918	883	982	933

* Provisional figures.

RELIGION. The population by religions at the census of 1917 was as follows: Moslems, 11,658,148; Orthodox, 854,773; Roman Catholics, 107,687; Jews, 59,581; Protestants, 47,481. The centre of Mohammed culture is the Mosque and university of El-Azhar at Cairo.

AGRICULTURE. Egypt's arable area was placed in 1919 at 7,691,793 feddans (1 feddan equals 1,038 acre), of which 2,829,215 could be cultivated only after reclamation. In 1919 there were 7409 foreign landowners owning 627,586 feddans and 1,799,238 native landowners owning 4,883,673 making a total ownership of 5,511,259 feddans distributed among 1,806,647 proprietors. Cotton is the chief crop. The following table from the *Statesman's Year Book* of 1921 shows the cotton area and crop for three seasons:

Season	Area, feddans	Crop, quantars
1917-18.....	1,877,000	6,293,000
1918-19.....	1,361,000	4,821,000
1919-20.....	1,574,000	5,572,000

The other principal crops with 1919 figures are as follows: Wheat, area and yield, respectively, 1,323,376 acres and 820,195 tons; barley, 356,530 acres and 219,620 tons; corn, 1,792,109 acres; millet, 266,556 acres; rice, 149,630 acres.

THE COTTON SITUATION. At the close of the year Egypt was still suffering from the effects of the cotton crisis. The drop in price and the lessened demand have been all the more keenly felt because Egypt is essentially a one-crop country and responds immediately to conditions affecting that crop and its marketing. With the placing of new orders and increase in prices in September, coincident with arrivals of the new crop at Alexandria, and with consistent reports of a short crop in the United States, prices began to rise, reaching as high as approximately 56 cents per pound (at normal rate of exchange) spot price for fully good fair Sakellarides by the end of the month. The anxiety of growers, however, to dispose of their

cotton, even at a sacrifice, produced the inevitable result and a jumpy market ensued, with arrivals in Alexandria much more than counterbalancing shipments to foreign countries. Prices fell steadily, with occasional reactions from approximately 60 cents per pound on October 1 to 41½ cents on November 4. Arrivals of cotton at Alexandria from the beginning of the cotton season on Sept. 1, 1921, to November 5 amounted to 1,635,675 kantars (of 99.05 pounds each) as against 961,878 kantars for the corresponding period of the preceding year. Exports for the above period of 1921 amounted to 153,739 bales or 1,208,268 kantars, and for the corresponding period of 1920 and 1919 to 51,905 bales or 396,535 kantars and 113,409 bales or 860,241 kantars, respectively. Stocks at Alexandria on Nov. 5, 1921, amounted to 2,262,407 kantars, as against 963,525 kantars and 1,327,932 kantars for the corresponding date in 1920 and 1919, respectively.

According to the Egyptian Ministry of Agriculture, the cotton crop for the 1920-21 season (beginning Sept. 1, 1920, and ending August 31, 1921) was the poorest in point of quality for many years owing to unfavorable weather conditions, shortage of water during one period of the season and an oversupply later, and attacks by boll worms in almost all parts of Egypt. The crop was also reduced in quantity because of the restriction in cotton area ordered by the State and the meagre use of fertilizers, but this has been largely offset by the unusually large carry over of ginned cotton (about 180,000,000 pounds) from the preceding season's crop, and the relatively large quantity remaining unginned in the interior (about 75,000,000 pounds), so that the cotton available for the present season will probably amount to over 600,000,000 pounds.

The exports of raw cotton form by far the most important part of Egypt's foreign trade. In 1913, out of a total export trade valued at ££31,662,065, the exports of cotton were valued at ££25,513,109, or 81 per cent. For the two following years, the values of cotton, as well as total exports were lower than for 1913, but commencing with 1916, rose rapidly, and for 1920, total exports were valued at ££85,467,061 and cotton exports at ££75,096,026, or 88 per cent. That year proved to be the peak of the cotton trade, and for the first nine months of 1921, the value of the total exports was only ££19,090,050, as against ££72,107,129 for the same period of 1920, and the value of the cotton exports for the same period was ££13,196,788, as against ££63,913,013 for the same period of 1920.

Exports of Egyptian cotton to the United Kingdom in 1913 amounted to 2,996,404 kantars, valued at ££10,996,440, and to the United States, to 673,255 kantars, valued at ££2,442,530. In 1920 with the enhanced prices that prevailed during the greater part of the year, the 1,764,410 kantars exported to the United Kingdom were valued at ££31,064,882; and the 1,268,689 kantars going to the United States at ££26,222,272. During the first nine months of 1921, total exports of cotton, were 2,816,862 kantars valued at ££13,196,788; the exports to the United Kingdom were valued at ££5,974,605, and to the United States at ££1,976,312.

COMMERCE. The following table shows the import and export totals for the fiscal years

1913, 1919, and 1920 and the annual balance of trade:

Year	Merchandise *		Specie	
	Imports ££	Exports ££	Imports ££	Exports ££
1913.....	27,865,195	31,662,065	9,791,188	11,137,932
1919.....	47,409,717	75,888,321	183,513	3,174
1920.....	101,890,963	85,467,061	399,039	12,249

* Excluding re-exports (££2,551,894 in 1920) and transit trade (££12,811,874 in 1920).

The following table from the *Statesman's Year Book* of 1921, shows imports and exports by countries in the fiscal years 1919 and 1920:

COMMERCE (MERCHANDISE)		BY PRINCIPAL COUNTRIES		
Countries of origin or destination	Imports from		Exports to	
	1919	1920	1919	1920
	££	££	££	££
Great Britain . . .	21,480,957	37,894,760	40,222,821	36,343,284
India and Aden . .	2,347,965	3,338,709	587,015	747,707
Australasia	1,848,623	4,900,722	48,910	91,137
United States . . .	2,889,749	10,751,055	16,714,085	26,469,171
China	1,317,270	2,325,707	25,881	19,907
Japan	1,729,164	2,264,051	1,864,292	1,236,763
France	2,390,640	6,104,865	5,871,556	8,069,200
Greece	1,893,105	2,085,531	696,591	413,036
Italy	2,512,028	5,705,020	3,499,514	3,303,414
Switzerland	455,307	1,549,646	1,811,096	2,246,838
Belgium	202,710	1,927,150	207,019	324,260
Chile	1,098,055	2,057,266	5,494	6,559
Germany	6,527	1,186,121	243,561	1,294,373
Sweden	443,118	1,639,665	56,779	19,721

The following information in respect to the foreign trade in 1920 was supplied by the United States Bureau of Foreign and Domestic Commerce:

The foreign trade of Egypt in 1920 was valued at \$935,353,745, which was an increase of \$319,775,961 or 52 per cent over 1919, the total of that year having been \$615,577,784. The exact balance of trade in favor of Egypt in 1919 amounted to \$142,182,278, but in 1920 the balance of trade was against the country to the extent of \$81,948,047. In 1920 the gross imports increased 115 per cent over 1919, but exports increased only 12 per cent. In 1913 the imports amounted to \$139,047,324 and the exports to \$157,251,311, with a favorable balance of \$18,203,987. The chief imports from the United States in respect to value in 1929 were coal and flour and the chief export to the United States, making up nearly the whole total was, as usual, cotton. During the first nine months of 1921, exports to the United States from Egypt were \$10,364,812 as compared with \$93,672,889 for the corresponding period of 1920. Imports to Egypt from the United States for the first nine months of 1921 were \$10,754,782 as compared with \$30,581,246 in the corresponding period of 1920.

FINANCE. The revenue and expenditures for five fiscal years are shown in the following table taken from the *Statesman's Year Book* of 1921:

Years	Revenue ££	Expenditure ££
1913.....	17,368,616	15,728,785
1916-17.....	19,927,274	17,240,606
1917-18.....	23,166,074	22,496,948
1918-19.....	27,661,289	23,384,326
1919-20.....	33,677,401	28,991,934

The Egyptian fiscal year ends on March 31. Operations for the fiscal year ending March 31, 1921, showed a deficit of £E15,604,261, receipts being £E46,446,921 and expenditures £E62,051,182. Estimated revenues for the fiscal year ending March 31, 1922, were, £E36,701,000 and estimated expenditures £E38,682,000, or a further deficit of £E1,981,000. Basically Egypt is sound, but is almost entirely at the mercy of the cotton crop, and as a considerable part of the national revenue depends upon the success of the crop and its marketing under favorable conditions, there is always an element of uncertainty in the revenues. Some important sources of revenue have not yet been tapped. Should it be possible for the government to increase the income from these hitherto unused means, the return to an actual gold basis in its circulating medium and the redemption of its material obligations would be accomplished in a relatively short time. The financial depression of 1921 showed a tendency to lessen under the influence of new cotton orders, but at the close of the year was still sufficiently grave.

At the end of 1920 the bank-note circulation exceeded £E40,000,000, of which only about £E3,333,000 were secured by gold. Of the remainder, less than £E400,000 were in Egyptian government securities. The rest was secured by treasury notes and national war bonds of Great Britain, which were greatly depreciated. Statements of the National Bank of Egypt for July 31 and August 31, 1921, showed bank-note circulation of £E31,400,000 and £E30,500,000, respectively. One of the effects of the restricted sale of cotton and the large quantities of unginned cotton held in the interior was a reduced bank-note circulation. Under normal conditions the bank-note circulation is heavy until the season of large cotton shipments is over, which is usually not before the end of March. During 1921, however, conditions were extremely abnormal, and circulation declined early.

The public debt of Egypt at the end of 1920 amounted to £93,067,640, divided as follows: Guaranteed debt, 3 per cent, £5,967,900; privileged debt, 3½ per cent, £31,127,780; unpaid debt, 4 per cent, £55,971,960. At the end of January, 1921, the debt remained the same, with the exception of the 3 per cent guaranteed debt, which has risen to £6,098,400, and after that time it remained at almost the same figures.

The Egyptian pound, with a normal value of \$4.9431, bears a fixed ratio to the pound sterling, the latter being equivalent to 97½ Egyptian piasters, of which there are 100 in the Egyptian pound. Consequently the Egyptian pound fluctuates with the pound sterling.

DEFENSE. The native army of Egypt was disbanded in 1882 and a new army organized under a British commander with the title of Sirdar, which, however, was a comparatively small force, the strength being placed at 17,000. Before the late war there was a British army of occupation comprising about 6067 of all ranks. After the country became a protectorate the British garrison numbered about 11,605 and there was an additional body of Indian troops, which brought the total to about 20,463 (1920).

GOVERNMENT. As noted above the British protectorate was proclaimed, Dec. 18, 1914. On the following day Abbas Hilmi was deposed and the title of Sultan was bestowed on Hussein Kamil, who died in 1917 and was succeeded by

Ahmed Fuad Pasha, who assumed the title of Fuad I (Oct. 9, 1917). The British policy as set forth toward the close of 1919 aimed at the self-government of the country under British protection, the British government to retain control of foreign affairs while developing a system that would admit of increasing participation in the government by the natives. Pursuant to this policy a mission under Lord Milner was sent to Egypt for the purpose of working out a programme. This resulted in a report containing recommendations to the home government in 1920. As noted below under *History*, the year 1921 was taken up with a discussion of this question of independence between the Egyptian representatives and the British government. In 1921 the Egyptian ministry was constituted as follows: Prime Minister, Adly Yeghen Pasha; Vice-President of the Council, Hussein Rushdi Pasha; Interior, Abdel Khalek Sarwat Pasha; Education, Gaafar Waly Pasha; Public Works, Marine and War, Mohammed Shaffik Pasha; Justice, Abdel Fattah Yehia Pasha; Agriculture, Nuguib Ghali Pasha; Wakfs (Pious Foundations), Midhat Yeghen Pasha; Communications, Ahmed Ziwer Pasha; Finance, Ismail Sidky Pasha.

HISTORY

THE MILNER PROJECT. Before the war Egypt was nominally under the suzerainty of Turkey and the English military occupation had not been recognized by the Powers. A certain degree of self-government was enjoyed by the country which had its own sovereign, army, legislative system, and coinage. During the war, as is noted in the preceding *Year Books*, England placed Egypt under a protectorate but declared that the status was merely provisional and would be changed after the war. Egypt was a loyal ally during the war and out of its population of 14,000,000, about 1,200,000 were mobilized. Palestine was conquered largely by the Egyptian recruits. After the armistice the Egyptians requested the privilege of sending a delegation to the Peace Conference. The British arrested and deported four National chiefs. Thereupon, the Nationalist element protested and made demonstrations which brought upon them armed attacks and methods of repression, compared by critics of the British policy to those employed in Ireland. Finally, the British government permitted the four Nationalist leaders, including Zaglul Pasha to go to Paris, but they had no success in putting their claims before the congress. Hostile demonstrations continued in Egypt and the British government finally sent Lord Milner to Alexandria to make investigations. He remained in Egypt three months, but found that the Nationalists always avoided meeting him and his plans were effected without conference with them. He returned to London and, realizing the necessity of coming to terms with the Nationalists themselves, inspired the government to invite Zaglul and his colleagues to a conference. Meanwhile the Milner report was submitted to the British Parliament, February 18. The essential points of the British proposal were, that the British troops should be maintained only at Port Said and in the eastern zone of the Suez Canal; that Alexandria should be a British naval base with an international police force; that a British controller of the public debt should be appointed; that Egypt

should have the right of diplomatic representation abroad but that the British government should have the right to be consulted in all treaties except commercial agreements; that the Anglo-Egyptian Sudan should continue as at present, both countries having equal rights in it; that the safety of the Egyptian water supply should be guaranteed. It was criticised in certain respects in Parliament by the Prime Minister and Mr. Winston Churchill, who had succeeded Lord Milner as Secretary of the Colonies on January 17.

NATIONALIST OPPOSITION. The Milner project was attacked by the Egyptian Nationalists as inconsistent with Egyptian independence. Zaglul rejected the project but agreed to present it to the judgment of the people. When this was done, the popular decision demanded the abolition of the English protectorate and the independence of Egypt, but conceded considerable advantages to Great Britain. Lord Milner refused to accord the degree of independence demanded, for fear that detriment might come to the Empire since Egypt was on the road to India, and the negotiations were broken off. The British representative in Egypt suggested to the Khedive that a new ministry be formed under Adly Yeghen Pasha, and invited him to send a delegation to conclude an agreement. A coalition cabinet was formed, March 15. But when Adly Pasha assumed office he realized that the people were behind Zaglul and that they desired that no negotiations should be undertaken in which he did not take part. Adly Pasha then invited Zaglul to serve as a delegate. The latter laid down the conditions that martial law should be abolished, that the basis of the negotiations should be the independence of Egypt, and that the majority of the delegates should be chosen by the people instead of appointed under British influence. These demands being refused, Zaglul declined the appointment. Thereupon demonstrations were renewed in all parts of the country and a demand was made that a national assembly should be called to decide the question. The proclamation on the subject contained the following passage: "If Lord Milner treats with Adly Pasha, it is as if King George V were treating with King George V. It cannot be admitted that they should decide the fate of our country and change the course of our destiny and that of our children without consulting the people. England wishes to treat with Egypt. Let her address herself to us. This demand is the more legitimate in that the legislative assembly, the only elective body in the country, has not been called together since the war." After the repression of Nationalist newspapers and the arrest of agitators by the British authorities, popular demonstrations became more violent and in some parts of the country were accompanied with bloodshed. The riots spread to various cities, including Cairo and Alexandria. The British press attributed the disturbances to the Egyptian hatred of foreigners, as illustrated by street fighting between Greeks and Egyptians. On the other hand it was urged that in general, foreigners in Egypt were well treated.

THE EGYPTIAN DELEGATION. In August conferences were held in London between the British government and an Egyptian delegation headed by Adly Pasha which demanded enlarged powers of self-government and virtually complete independence. One of the stumbling blocks was the demand of the Egyptians that British troops be

withdrawn. The conference was adjourned in August and resumed September 24. During this interval, riots in Egypt were continuing. The Egyptian delegation under Adly Yeghen Pasha left London, November 12. According to the press the reason for their departure was the inability to reach an agreement in regard to the question of military representation. In other quarters it was pointed out that the Egyptians were favorable to British control of the canal zone and to an arrangement of the military question as regarded military authority in other parts of the country; and it was hinted that the real reason was the unwillingness of the Foreign Office to conform to the recommendations of Lord Milner in February, who in a report to Parliament had declared that the promise of self-government ought not to be postponed. It was believed by some that the real cause of the breaking off of the negotiations was the question of Egyptian diplomatic representations in foreign countries. The Egyptians desired to appoint their own diplomats and to receive diplomatic representatives from foreign Powers including a British ambassador, while the British authorities wished Egyptian foreign affairs to be directed by a British commission.

SITUATION AT THE CLOSE OF THE YEAR. It was supposed that Adly Pasha would take a moderate position and reject the extreme programme of Zaglul but although he made certain concessions he refused to give way on the main points; thus a rupture resulted and Adly in setting forth his side declared that he supposed that he was concluding a treaty of alliance with England but it turned out that England was insisting upon a pact of subjection. England intended to maintain in Egypt a high commissioner invested with exceptional powers. England insisted that she must be the sole protector of foreign interests in the valley of the Nile and that she must control absolutely the foreign relations of the country. The London government declared this characterization false and Lord Allenby sent a letter explaining the British point of view. This, however, did not have any effect and no agreement was reached. It appeared from the official documents published late in 1921 that the stumbling block was the military question. In the plan drawn up on November 10, Great Britain undertook to furnish her support to Egypt for the defense of her vital interests and her territorial integrity. British troops were to have the right of passage across Egypt and British garrisons were to be maintained in certain places for a fixed period. They were also to have the means at their disposal for securing barracks, etc. The Egyptian delegation in its reply of November 15 suggested that the maintenance of troops in the canal zone ought to suffice and that the proposed measures amounted to a pure and simple occupation of the country. The delegation also objected to the plan for controlling the foreign policy of the country through the British high commissioner who must be consulted before Egypt could enter into an agreement with a foreign Power. Lord Allenby in a letter to the Sultan dated December 3, declared that the British government was ready to examine all methods for the execution of its plans but it could not modify the principles on which these plans rested. From the Nationalist point of view the criticism of the British position was that it did not take into account at all the interests of Egypt,

being exclusively concerned with the interests of Great Britain. The correspondence after the return of the delegation had satisfied no one but on the contrary had aroused the indignation of the entire country. The leader of the Nationalists toward the close of the year declared that while Great Britain was of course strong enough to force Egypt to submit she never would succeed in destroying the sentiment of patriotism and that the day was approaching when British statesmen would perceive that Egypt would accept nothing less than her independence. He concluded with the declaration that the Egyptians were ready to fight for their liberty. Disturbances occurred at Cairo in the latter part of December, arising in the first instance from the arrest and removal of the Nationalist leader, Said Zaglul Pasha, who had refused to obey the order of the military authorities that he and his supporters should at once cease all their political activities and leave the city. When the police were removing him, the people began rioting in the streets. On December 25 it was reported that as a result of the disturbances during the preceding two or three days twelve persons had been killed, but that marines from the British ships had the situation under control. On September 26, however, five more persons were killed and four wounded by the troops. It was also learned that the majority of the government officials had decided to go on strike. It was admitted that the situation had become serious, but it was believed that the British forces were better prepared to deal with the movement than they had been when the outbreaks had occurred in 1919. Complete control of the affair was in the hands of Lord Allenby, the British High Commissioner, there being no check on his authority. It was hoped that the deportation of Said Zaglul Pasha to Sues would be approved by the more moderate element in the country.

OTHER EVENTS. There was difficulty in the course of the year over the question of American Shipping Board's cargo prices of cotton. A cooperative cotton syndicate was formed in Egypt, January 5, to combat these prices, and it supported the British steamship lines in the latter's quarrel with the American Shipping Board in July. The Egyptian planters in some instances refused to admit the monopoly enforced by the lines.

EINSTEIN THEORY. See ASTRONOMY.

ELDRIDGE, FRANK HAROLD. Naval engineer, died in France in December. He was born at Columbus, O., July 14, 1852; graduated at the United States Naval Academy in 1875; and was promoted through the various grades to the rank of commodore in 1909, retiring in that year. He served in the Spanish-American war, and was head of the department of steam engineering and naval construction in the Naval Academy from 1900 to 1902. He was reengaged in active service during the late war.

ELECTRIC BATTERIES. Little was heard of progress in battery design or manufacture during the year. The condition of deflation that prevailed everywhere easily furnishes a reason. It should be noted, however, that wherever electric trucks or fire apparatus had been introduced, the battery equipment was reported to be highly satisfactory and dependable, only awaiting more activity in business to demonstrate its popularity.

ELECTRIC LIGHTING. One of the notable features of the past year was the steady replace-

ment of arc lamps for street illumination by high-efficiency gas-filled tungsten lamps, characteristic of the progress of the past four years; the incandescent units having now become standard. For moving picture projection, some powerful incandescent lamps were brought out, one of these being a 900-watt bulb, operating at 0.46 watt per candle power. Increasingly skillful use of color as an adjunct to lighting effects, not only in theatres, but also for the purpose of intensifying the lighting of special scenes on the moving picture screen was very noticeable. Advertising signs made use of well-chosen colors in the scheme of their nightly displays more than ever before. In Washington, D. C., there was a wonderfully effective display at the time of the convening of the Disarmament Conference. The Washington Monument was illuminated by the rays of four searchlights placed at its base and behind the Capitol, there blazed out an "aurora borealis" produced by a battery of powerful searchlights radiating, through colored screens toward the sky; while the "jeweled archway," with its lights suspended between two illuminated obelisks in front of the building wherein the Arms Conference had met combined to produce a spectacle that, while it involved no new features, was unique of its kind. On railroads, the use of colored lamps for daylight as well as night indications became more general, as being more dependably visible than semaphore arms.

ELECTRIC POWERS. TRANSMISSION OF. Business conditions during 1921 prevented the inception of any important new transmission lines, although several projects that had been under construction were pushed to completion. There was noticeable much more rugged design and construction in the steel towers built to carry electric power lines, experience having demonstrated that the earlier types lacked the strength necessary to withstand unusual strains such as tornadoes, heavy coatings of ice on the conductors, etc. Owing to the constantly increasing capacities of the newer generating stations, improved designs of oil switches, large enough to deal with the very great quantities of energy involved were built and put in service.

On the Canadian side of the Niagara river, the canal from Chippawa, above the Falls, to Queenston, at the mouth of the river was completed and the first generating unit put in service at the close of the year. This was a part of the system of the Ontario Hydro-Electric Power Commission, which with many other plants under its control, supplied energy to all parts of the Province. Although not completed, the Chippawa-Queenston development was interesting for the reason that it utilized the maximum fall of the river, 305 feet. In the West, the Great Western Power Company completed its Caribou station and began distribution of energy at 165,000 volts. The Pacific Gas and Electric Co., on its Pit river transmission line, was operating at 220,000 volts, the highest pressure ever employed in regular distribution work. One of the lines of the Southern California Edison Co., already operating at 165,000 volts, was being changed to adapt it to 220,000-volt current. New, specially designed transformers and a better arrangement of insulators were among the improvements under way to insure satisfactory operation.

The year was notable for the preliminary steps

in the creation and organization of a Super Power Zone, comprising the territory between Washington, D. C., and Portsmouth, N. H., and extending about 150 miles back from the Atlantic coast. The object of the plan was to develop water powers for the generation of electric energy and build steam-driven central stations near coal mines, or wherever other considerations also were favorable. Existing plants of sufficient capacity were to be utilized, while the smaller, less efficient stations were to be closed and the districts supplied by them taken care of by connection with the larger distributing centres. Dependent upon the amount and location of demands for maximum power, these stations could be so inter-connected as to equalize their loads and enable them to operate at higher efficiency. Electrification of the railroads in the Super Power District would follow as a matter of course, the amount of coal thus saved being enormous. The large power stations could supply electrical energy at a lower cost than steam locomotives can develop their power; and furthermore, the plan does away with the cost of hauling coal from mines to distributing points, as well as avoiding the empty-car haulage back to the mines. Engineers estimated that about ten years would be required to put the plan into effect.

ELECTRIC RAILWAYS. See RAILWAYS, ELECTRIC.

ELECTRICAL INDUSTRIES. Present-day industry and manufacturing are so dependent upon electrical energy for their very existence, that any review of the condition of electrical industries is inseparable from industry in general. So, in the financial depression and industrial readjustment that marked most of the year 1921, the electrical industries did not escape their share of the burden and the establishments manufacturing electrical machinery, wire, appliances, etc., were no exception to the rule of reduced working forces and greatly diminished output. At the same time, the natural growth of many communities created a constantly increasing demand for electric energy for light and power. While general business was quiet, there was a steady demand that had been created and stimulated by active sales campaigns for household electric appliances. In another direction also, the constantly increasing needs of the public for additional telephone service kept the factories producing such instruments and apparatus steadily employed. Electric furnaces for steel works and for brass foundries were being generally considered for replacing oil and gas fired furnaces for such purposes. The success already attained with electric furnaces for the purposes mentioned made their widespread introduction dependent only upon a resumption of business activity and a condition of greater ease in money available for manufacturing.

If anything were needed to illustrate the ever widening use of electricity, the following table, which appeared in *Electrical World*, Dec. 24, 1921, is convincing. The statistics were compiled by *Monthly Sales Service*, a publication issued by the Society for Electrical Development.

Homes wired in the United States.....	7,636,469
Homes reached by electric service.....	13,000,000
Homes not reached by electric service.....	8,145,126
Homes reached by central-station lines but not wired.....	5,363,531
Homes not wired.....	13,508,657
Communities reached by central-station lines...	14,000

Annual central-station revenue from use of electric irons.....	\$39,000,000
Annual central-station revenue from use of vacuum cleaners.....	\$4,750,000
Annual central-station revenue from use of washing machines.....	\$3,500,000
Annual central-station revenue from use of electric ranges.....	\$6,000,000

ELON COLLEGE. An institution of higher learning situated at Elon College, N. C., maintained by the Christians; organized in 1889. In the fall of 1921 the number of students enrolled was 321 and the faculty numbered 29. The library contained about 12,000 volumes. The productive fund totaled \$977,470. President, William Allen Harper, Litt.D.

ELWES, GERVASE. See NECROLOGY.

EMORY UNIVERSITY. An institution of the higher learning situated in the outskirts of Atlanta, Ga.; founded in 1914. In 1921 the students numbered 1020 and the faculty 83. President, Harvey Warren Cox, Ph.D.

EMPLOYERS' LIABILITY. See WORKMEN'S COMPENSATION.

EMPLOYMENT. See LABOR LEGISLATION.

ENGEL, PETER. Roman Catholic Abbot of St. John's Abbey, Collegeville, Minn., and President of St. John's University there, died at Rochester, Minn., November 27. He was born at St. Nicholas, Wis., Feb. 3, 1856, and educated at St. Michael, Minn. Having graduated from St. John's University in 1874, he entered the order of St. Benedict, and rose in it to the high rank of Abbot. He was one of the most prominent Benedictine prelates in this country, and the recipient of marks of special favor from Rome.

ENGINE, GAS or OIL. See INTERNAL COMBUSTION ENGINE.

ENGINEERING. The industrial depression of 1921 the world over naturally limited the field for the efforts of the engineer and comparatively little was accomplished in new design or construction save on the most pressing and necessary basis. Reference to the article BRIDGES will show that bridge engineers had under way a number of ambitious undertakings and that some important new projects were under discussion or even being designed. FLOOD PROTECTION continued to arouse the interest it deserved and notable was the approaching completion of the Miami Conservancy works in Ohio. In TUNNEL construction the tendency was rather to line or widen tunnels than to build new bores in the existing state of railway finances. For new POWER (q. v.) and other projects a number of DAMS were under way, while new CANALS were being agitated. WATER WORKS were attracting increased attention during the year, and the problems of urban and interurban RAPID TRANSIT continued to be of interest both in the way of new facilities and furnishing immediate and much needed relief to the congestion of city streets. In mechanical engineering, connected as it was so closely with manufacturing, there was not much in the way of extraordinary progress though new power plants and projects were equipped with BOILERS, STEAM ENGINES, STEAM TURBINES, and WATER WHEELS, or perhaps some form of INTERNAL COMBUSTION ENGINE (q. v.). In electrical engineering there is the usual record under DYNAMO-ELECTRIC MACHINERY and RAILWAYS, ELECTRIC, while under RAILWAYS the YEAR BOOK as usual records the general progress and construction of the year,

slight though it was so far as the United States was concerned. In marine engineering after the feverish activity of the war and immediately thereafter there was an inevitable reaction so that SHIP BUILDING and SHIPPING suffered. In mining and metallurgy likewise there was little incentive to new effort, while the developments of the year is also discussed under GOLD, SILVER, TIN, LEAD, ZINC, and other metals, including iron and steel which of course suffered during the year. In sanitary engineering there was progress to be recorded in GARBAGE AND REFUSE DISPOSAL and SEWERAGE, while for municipal engineers the subject of CITY PLANNING continued to interest WIRELESS TELEGRAPHY AND TELEPHONY made important advances during the year and the broadcasting of news and its being received at countless amateur stations with simple equipment made notable progress. The year was not barren of achievement in the various branches of engineering as the topics suggested and other will show, but as already stated design and construction seemed to await greater prosperity.

ENGINEERS. See MUNICIPAL GOVERNMENT.
ENGINES, STEAM. See STEAM ENGINES, STEAM TURBINES.

ENGLAND. England proper is the largest and most densely populated portion of the United Kingdom. The term as employed in reference to the government often applies to the United Kingdom and Ireland. See GREAT BRITAIN.

ENGLAND, CHURCH OF. The established church of England and Wales, is represented by the Protestant Episcopal Church in the United States. The church was disestablished in Wales and Monmouthshire by act of Parliament in 1914, but the process was deferred until after the war. The supreme governor of the church is the King of England. He has the right to fill vacant archbishoprics and bishoprics. Many deaneries, prebendaries, and canonries are under the appointment of the First Lord of the Treasury, and a large number of livings and some canonries are in the gift of the Lord Chancellor. The country is divided into two provinces for administrative purposes. They are Canterbury and York, each being controlled by an archbishop. In addition there are 41 bishops and 38 suffragan and assistant bishops. Under the bishops are about 34 deans and 100 archdeacons. Under mandate of the King each province may sit in Convocation or council, for the purpose of passing regulations, resolutions, etc., affecting the clergy and the church in general. Such measures must be approved by the House of Parliament before they became effective. In 1915 there were 2,359,599 full members of the church, with 14,079 ministers. The number of adherents is about 7,000,000. There were also 3,063,437 Sunday School pupils and Bible class members. Voluntary offerings for the year 1915-16 totaled £7,061,000.

ENGLISH LANGUAGE AND DIALECTS. See PHILOLOGY, MODERN.

ENTOMOLOGY. See ZOOLOGY.

EPILEPSY. The experience of the great war has taught us that shock without injury as well as actual injury of the skull may produce all of the clinical varieties of this disease; and that they may come on soon after the injury or not until months—perhaps a year and a half at the outside—have passed. The belief in some quarters that there is but one epilepsy was already held

before the war. In the YEAR BOOK for 1920 the drug luminal was mentioned as a decided addition to our resources and recently Maillard, a physician of the Bicêtre Hospital, where Paris epileptics are treated, has expressed himself enthusiastically on the new remedy. It is known in France as gerdalen, its full chemical name being too long for familiar use. The drug is not entirely innocuous, for a condition not unlike alcoholic intoxication has sometimes been seen to follow overdosage. While experienced epileptologists warn the profession and public not to expect too much of it, Maillard lays stress on several undoubted advantages over bromides and other old remedies. Thus it is of value in all of the epilepsies and not merely, like bromides, in the motor paroxysms. It does not produce, when given indefinitely in proper doses, any such condition as bromism which in its extreme forms is more dreadful than the disease itself. The mental failure which sooner or later succeeds to chronic severe epilepsy has not been seen, although the observation period is too short to decide so important a point. In theory, whatever can arrest the convulsions and other seizures will prevent the mental deterioration and since luminal antagonizes all forms of the disease, it should be far superior to bromides in preventing dementia. But not every patient can benefit from the luminal treatment alone and some of these are controlled by a mixture of the latter and bromides, each in small doses. Another new drug which may come into some use as a substitute for bromides is boropotassic tartrate, which is being widely tested.

EPIRUS. A district of southern Albania and northern Greece, the Greek portion corresponding to the department of Yanina. The boundaries are uncertain. The Greek provisional census of 1913 gave the department of Epirus or Yanina a population of 245,618. Northern Epirus has a population placed at about 250,000.

EPISCOPAL CHURCH. See PROTESTANT EPISCOPAL CHURCH.

EPWORTH LEAGUE. See articles on the METHODIST DENOMINATIONS.

ERANIAN LANGUAGE. See PHILOLOGY, MODERN.

ERIE, PENNSYLVANIA, FLOOD PROTECTION WORKS. See FLOODS AND FLOOD PROTECTION.

ERIE SYMPHONY ORCHESTRA. See MUSIC, Orchestras.

ERITREA. An Italian colony in Africa on the west coast of the Red sea extending from Cape Kasar to Cape Dumeirah with a coastline of about 670 miles. Area, about 45,800 square miles; population, largely nomadic, about 450,000, though an estimate in 1919 placed it as low as 380,000. The Europeans numbered about 3000, of whom 2600 were Italians exclusive of the military forces. Capital, Asmara, with a population of 14,711 of whom 2500 were Europeans. Massawah or Massaua with about 2645 inhabitants is the centre of a large trade with the Arab regions on the Red sea. There is a considerable production of palm nuts which are an important export. Mineral products include gold, salt, and petroleum. There is a local trade in animal products, and the live stock include camels, oxen, sheep, and goats. There is a considerable pearl-fishing industry. The imports in 1918 amounted to 103,811,379 lire and the exports to

85,254,452. The colony's budget for the year 1920-21 was as follows: Colonial revenue, 10,132,040 lire; state contributions, 6,650,000 lire; extraordinary revenue, 5,224,400; total 22,006,440. Expenditure: Civil administration, 12,049,820 lire; military, 3,857,290; extraordinary expenditure, 6,099,330; total 22,006,440. Governor at the beginning of 1921, Marquis G. Cerrina Feroni.

ERZBERGER, MATHIAS. Former German Vice-Chancellor, shot and instantly killed near Offenbergl in Baden, August 26. He was born at Buttenhaus, Sept. 20, 1865, the son of a poor tailor; taught school and, entering the university, pursued special studies in international law and political economy. He attracted attention by his writings on political and economic subjects and by his eloquence as a political orator, and was elected a member of the Reichstag in 1903 as representative of the Centre. During the war he came into general notice through his famous resolution, known throughout the world as the July Resolution (1917), in favor of peace without annexations. At this time he proposed a formula of parliamentary reforms which was refused by Chancellor von Bethmann Hollweg. The July Resolution was regarded by the extreme military party in Germany as one of the things that tended to break down the morale of the people. For many years Erzberger was chief of the Centre and after the war he was one of the leading personages in political life. From the time of the July Resolution down to his death, he was the target for the attacks of the reactionaries. After the defeat he was appointed a minister without portfolio in the cabinet of Maximilian. During the negotiations for peace he was a member of the German delegation that arranged with Marshal Foch the terms of the armistice. After that he was leader of the Majority Socialists in the formation of a new ministry. His part in the acceptance of the armistice further exasperated the military party against him. Several attempts had been made to assassinate him, concerning which he wrote as follows in his *Recollections of the War* published a year before his death: "Some members of the Reichswehr made a murderous assault on the evening of the day when the Weimar Assembly accepted the Treaty of Versailles. This failed. A few days later they bombarded my study at the Ministry of Finance. A hand grenade wrecked one of the rooms that they believed was my sleeping-room. On the occasion of the third attempt at assassination which took place at Moabit, I was plainly protected by the hand of God. . . . All the hatred of my adversaries has not weakened in me the conviction that the signing of the Peace was at the time of which I have been speaking the only means of saving the German people." After the last attempt to assassinate him in January, 1920, he resigned from the cabinet but ran for parliament again in June, 1920, and was elected. His political enemies accused him of having sent money abroad and in May, 1921, the Reichstag removed his parliamentary immunity. Later he made a speaking tour in west Germany and according to the dispatches from Berlin recommended in his addresses the confiscation of the gold and silver hoarded by private individuals, the immediate levy of a tax on capital, and the carrying out of several plans of socialization. It was announced on September 13 that the Baden police had identified the murderer of

Erzberger as an ex-officer and former member of the brigade of the marines which had occupied Berlin at the time of the Kapp coup d'état.

ESKIMO. See ALASKA.

ESSAYS. See LITERATURE, ENGLISH AND AMERICAN.

ESTHONIA. One of the Baltic provinces of the former Russian empire comprising the former province of Esthonia, the northern part of the former province of Livonia, the islands of Moon Sound, the northwestern part of the Pskov government, and a small portion of the Petrograd government. Area, estimated at from 18,340 to 23,160 square miles; population, at from 1,500,000 to 1,750,000 of which over 90 per cent are Esthonians. The language spoken is Esthonian, but German and Russian are also generally spoken and understood.

PRODUCTION. Agriculture is the main occupation. On Oct. 10, 1919, a reform of the land system provided for the division of the large estates and this process was still being carried out in 1921. The country had not yet adjusted itself to the change. The stocks of farm animals were greatly reduced during the war. According to the latest available statistics the forest land made up about 20.1 per cent of the total area and the cultivated land 22.9 per cent. Of the forest land about 70 per cent was under fir trees. The chief crops are rye, oats, barley, and potatoes. There was a falling off in the average yield in 1920 from 1919, owing chiefly to the disorganization caused by the division of the large estates above mentioned. The yield of potatoes in 1920 was 21,232,605 bushels; oats, 5,319,471; winter rye, 3,788,955; barley, 2,514,555. The live stock in 1920 showed an increase over the preceding year and were as follows: Horses, 155,489; cattle, 414,955; sheep, 497,838; pigs, 244,912. The industries, which include textiles, shipbuilding, metal works, mining, and chemicals, did not suffer as much as in the neighboring countries, especially Latvia, from the German and Bolshevik occupations. Nevertheless, in 1920 most of the industrial plants were either idle or working only to a fraction of their capacity. This was due largely to the shortage of raw materials and fuel and to the cutting off of exports from Russia on account of the disturbed conditions there. The workmen in the industries before the war numbered 50,000 and in 1920 were reported at 8000 or 9000.

COMMERCE. Both exports and imports increased in 1920 over 1919. The imports in 1919 were \$11,177,744 and in 1920 \$19,931,218. The exports in 1919 were \$5,562,310; and in 1920 \$17,544,278. The chief imports in 1920 were coal, fertilizers, fish, salt, petroleum, and petroleum products, and the chief exports in 1920 were flax, paper, spirits, and timber.

FINANCE. The Esthonian mark fell steadily in exchange value during 1920, being 100 to the dollar at the beginning of the year and 375 to the dollar at the end of the year. The total paper money at the end of 1920 amounted to 2,100,000,000 Esthonian marks. The budget expenditures proposed for 1922 amounted to 5,500,000,000 marks of which 30 per cent was for military purposes. Exchange in December stood at about 400 to the dollar, but the government promised that the budget would be made to balance by the aid of internal credits, without recourse to new paper issues.

COMMUNICATIONS. There are two regular freight and passenger steamships between Reval and Stockholm and a regular Finnish service between Reval and Helsingfors. The vessels entering the port of Reval in 1920 numbered 2975 with a tonnage of 293,803. The largest tonnage next to the Estonian was that of the German vessels and the next was that of the Finnish.

GOVERNMENT. A constitution was adopted by the constituent assembly, June 15, 1920, and went into effect, Dec. 20, 1921. The executive power was vested in a state head and a ministry chosen by the state assembly, and the legislative power in a state assembly of 100 members elected for three years by universal, direct, equal, and secret suffrage, on the basis of proportional representation. The assembly was composed after the election of Nov. 28, 1920, of the following groups: Reformist Labor, 22; Agrarians, 21; Social Democrats, 18; Independent Socialists, 11; Populists, 10; Christian Party, 7; Bolsheviks, 5; Balts, 4; Russians, 1; Economist group, 1. The state head at the beginning of 1921 was Konstantine Paets and the Minister for Foreign Affairs, Ant. Piip.

ETHNOLOGY. See ANTHROPOLOGY.

ETYMOLOGY. See PHILOLOGY, MODERN.

EULENBURG, PRINCE PHILIP ZU. See NE-CROLOGY.

EVANGELICAL ASSOCIATION. A denomination composed largely of German born citizens of the United States. Its doctrines are very similar to those of the Methodist Church. The latest available statistics are those of 1919: they show 154,564 communicants; 1697 churches and 1160 ministers. Pupils in the Sunday Schools numbered 198,435, with 24,358 officers and teachers. In addition there were 1148 societies of the Young People's Alliance, with an enrollment of 39,718. In 1920 there was a total of 735 missions, of which 527 were in the United States with 510 missionaries; 163 missions were in Europe, with 159 missionaries; and 45 missions with 53 missionaries were in Asia. Considerable missionary work was done in this country during 1920 and 1921 among the Italian population. An active part has also been taken in missionary work in Japan and China. In 1920 receipts for missionary work totaled \$640,817.05, which was an average of \$4.02 per member. Besides the two principal periodicals, the *Evangelical Herald* and the *Evangelical Messenger*, which are published in Cleveland, Ohio, the association prints several other periodicals in German. Several hospitals are maintained in Philadelphia, Chicago, and other cities in the Middle West. Educational institutions are as follows: Correspondence College, Reading, Pa.; Evangelical Theological Seminary, Naperville, Ill.; Northwestern College, Naperville, Ill.; Schuykill Seminary and Evangelical School of Theology, Reading, Pa.; and a preachers' seminary in Germany. The headquarters of the association is in Cleveland, Ohio.

EVANGELICAL CHURCH, UNITED. For the year ending June 1, 1921, statistics of this denomination are as follows: Total membership, 90,096, or an increase of 1269 over the previous year; itinerant preachers, 519; local preachers, 218; organized congregation, 918. There were 922 Sunday schools, having 13,578 officers and teachers and an enrollment of 111,472 scholars. Home Missionary work is conducted in ten fields, principally in the Middle West. There were 282

missions operated last year, having a total church membership of 29,428, and a Sunday School enrollment of 49,670. Conversions during the year numbered 4195. The denomination maintained foreign missionaries in China and the Sudan region of Africa. Total receipts for all missionary work were \$321,871.10, or an average of \$3.57 per member, and an increase of \$40,299.52 over 1920. Contributions to the forward campaign in which the church is now engaged amounted to \$27,786.68, of which \$755,888 were pledged in 1921. The total amount contributed for all purposes was \$1,538,471, or an average of \$17.09 per member. The total value of all church property, which includes 482 parsonages, 891 church buildings and other property was \$8,931,634. The church maintains the following colleges and educational institutions: Albright College, Western Union College, The Bible Teachers' Training School (New York City), and the Illinois School for Christian Workers. The publishing house of the denomination is at Harrisburg, Pa. The principal publication is *The Evangelical*.

EVANGELICAL SYNOD OF NORTH AMERICA. Formerly the German Evangelical Synod of North America. This denomination stands for the positive and progressive principles of the German Reformation and emphasizes the unity of the spirit in the bonds of peace among all the Protestant bodies of the country. According to last available statistics (1920) there were 1292 congregations of which 1023 were in active membership with the Synod; 1073 pastors, with 376,955 members; 128,469 Sunday School pupils, with 12,546 teachers and officers. The total value of church property is given as \$23,352,070.96. The total amount contributed for the support and maintenance of churches was \$3,356,385.58; benevolences of all kinds amounted to \$419,223.76. Of this sum \$130,452.06 went to European relief. The General Conference meets every four years; in the interim, affairs are administered by four executive officers and fifteen boards.

Missionary work is carried on in many parts of the United States, India, Honduras, and South America. In the United States in 1920 there were 102 mission pastors in 19 districts and 2 outlying fields, maintained at the expense of about \$57,000. The Board of Foreign Missions, with an income of nearly \$70,000, reports progress in their Indian work, comprising 6 main stations with 49 out-stations, served by 11 men missionaries and 11 women missionaries, married and single, assisted by 275 native workers. A new mission has been organized in Honduras, and five missionaries are at work on two stations. The Eden Publishing House, the official publication agency of the denomination, is in St. Louis, Mo., and there is a branch in Chicago. The Eden Theological Seminary is also at St. Louis and a preparatory academy is also maintained at Elmhurst, Ill. The church maintains twelve deaconess' homes and hospitals, two for epileptic and feeble-minded, and eight homes for orphans and old people, valued in the aggregate at nearly \$1,500,000. The General Conference (September, 1921) provided for expansion of the work in many ways, including mission work in South America. The official church paper is *The Evangelical Herald*.

EVANS, HENRY CLAY. Manufacturer, and former consul-general in London, died at Chatta-

nooga, Tenn., December 12. He was born in Juniata County, Pa., June 18, 1843. During the Civil War, he was stationed with the union troops at Chattanooga, and after the war he served in the army during the trouble on the Mexican border. On retiring from military service he settled at Chattanooga where he became an iron and railway-car manufacturer. He was twice mayor of that city and was regarded as one of the most prominent Republicans of the South. He was delegate at large to the Republican National Conventions from 1892 to 1916; commissioner of pensions, 1897-1902; and consul-general in London, 1902-05. He did much for the improvement of Chattanooga, especially in the development of the school system, having served as commissioner of education early in his political career.

EVANS, MARY. See NECROLOGY.

EVOLUTION. See ZoöLOGY.

EXPERIMENT STATIONS. See AGRICULTURAL EXPERIMENT STATIONS.

EXPLORATION. (For Antarctic and Arctic regions, see POLAR RESEARCH.) The spirit of adventure turns more and more to the realms of scientific research. It now matters little to add a new land to geography, but it is important to contribute to the knowledge of the fauna, flora and ethnology of regions unexplored. At present the search for unvisited regions is confined to the Antarctic zone.

AFRICA. The most important exploration was that of Commander Lauzanne, with a force of mauretanian camelists, who by a journey of more than one thousand miles across the western Sahara, opened up a new route between western French-Africa and Algeria. Leaving Rallaouia, about 21.5° N., 10° W., he traveled northeast across the Maqtier and the Hank, to el Mzereb and el Kseib, 25° N., 6° W. Thence his route was westward to southern Iguidi, and back to the starting point,—reached in January, 1921. The regions traversed are largely occupied by the Requibat tribe,—warlike, numerous, hardy desert-dwellers, who live on their flocks and on plunder from distant forays. They received Lauzanne hospitably. The Hank consists of rocky hills, with scant vegetation sustained by rare but violent winter rains. The Iguidi and Maqtier, high sandy plateaus with much vegetation, afford as a rule good pasturage. Many of its plants, some species new, cover great desert areas, but trees were entirely absent.

The exploration of this entirely unknown region is of such importance that the Société de Géographie, Paris, awarded to Lauzanne the Amaury d'Adhemar prize.

Prince William of Sweden made a zoölogical exploration of the regions south and southwest of Uganda. His collections are said to number about 1000 mammals,—including a dozen gorillas,—2000 birds, and more than 6000 insects.

Accompanying the South-African expedition, Mr. H. C. Raven, of the Smithsonian Institute, made collections from Cape Town north to Uganda,—covering the Transvaal, Kafue river valley, Lake Tanganyika, and the Budongo forest. His collections include 697 mammals, 567 birds, 206 reptiles, 193 fishes, and a chimpanzee from Uganda. Another member, Mr. L. H. Shants devoted his efforts to securing live plants suitable for introduction into the United States, and to the study of agricultural methods practiced by whites

and by natives. His report covers quite fully the general character of the fauna and flora of the regions, and illustrates the various local methods of agriculture in Africa. His collection numbered about 1000 botanical species; of 1600 specimens of plants for introduction into this country for agricultural purposes, the most important are forage plants, nut plants, fruits, and vegetables. The American Museum, N. Y., through Mr. C. E. Akeley secured gorillas and other specimens.

ASIA. Among the most notable explorations of 1921, was the attempt to ascend Mt. Everest, possibly the highest peak in the world. This effort involved the exploration of large areas of unknown mountainous regions surrounding Everest. Colonel Bury led the main party, which left Darjeeling, occupied as the base of operations, on May 19. After two months of arduous labor, when success seemed probable, the party was obliged by extremely severe weather to abandon the attempt for this year. They reached a "col," at an altitude of 23,000 feet, the summit of Everest being placed at 29,002 feet. At the highest point reached there appeared to be a practicable route to the summit over snow of easy slope. The preliminary work of the expedition proved to be both extensive and scientifically important. About 13,000 square miles of unknown areas were visited and mapped. Most remarkable was the discovery at about 19,000 feet of human footprints, which the native bearers said were of a mountainous people rarely seen. Later they met these Tibetans, who, living at an elevation of 15,000 feet in complete isolation, had never before seen a white man or an European. The tribe was found to be polyandrista, with strange customs, one being the exposure of the dead to birds and animals. Animal plant and bird life were unusually abundant. Ten kinds of birds were seen above the snow-line, the sparrow above 18,000 feet. A thousand feet higher the party met hares and foxes. Extensive collections in the domain of natural history were made, especially in botany and geology. They gathered 206 different species, among which were primulas of various colors, dwarf rhododendrons, the yellow pedicularis, dephinium, a claret-colored poppy, and the eidelweiss, some plants being new to science. One of the pink family was found growing at the remarkable height of 20,400 feet.

Dr. A. Hrdlicka, of the U. S. National Museum, in an extended trip relating to the origin of the American aborigines, visited and made investigations in Japan, Korea, China, and Manchuria. The American Museum of Natural History dispatched its Third Asiatic Zoölogical expedition on a five years' survey under Andrews and Granger.

EUROPE. Henry Fairfield Osborn, President American Museum of Natural History, renewed in 1921 his search for New Stone sites throughout Europe.

NORTH AMERICA, CANADA. The Geological Survey of Canada has made important explorations in its sub-arctic regions. In the Mackenzie river district Dr. G. S. Hune made traverses of Root and North Nahanni rivers. J. W. Whitaker ascending Horn river 125 miles penetrated Horn Mountains, and also ascending Trout and Beaver rivers explored Lake Kakisa. Dr. M. Y. Williams ascending Willow river made incursions into the mountain ranges east of the Mackenzie. Dr. W. E. Cockfield made a traverse from Mayo,

Stewart river, to Selkirk, Yukon river. Dr. G. A. Young explored geologically Belcher island, Hudson Bay. Dr. E. M. Kindle working northwest of Lake Melville, made explorations on Grand Lake and in the valleys of the Red and Nascaupsee rivers. F. W. Waugh, of the Victoria Memorial Museum, made ethnological studies of the Nascaupsee Indians near Nain, Labrador. Dr. C. D. Walcott, Secretary of the Smithsonian Institute, continued his geological explorations of the Canadian Rocky Mountains, his researches covering the intervals of non-deposition of sedimentary rock-forming material west of Calgary, and other geological work in the Glacier Lake section.

UNITED STATES. The National Museum of Natural History continued at Aztec, N. M., its sixth year of excavation of Pueblo ruins. In Mimbres valley, N. M., and adjacent region, as also in Grand Gulch, Utah, N. C. Nelson explored prehistoric ruins, being assisted in Utah by B. T. B. Hyde. Mr. A. Thomson collected fossil vertebrates in Nebraska.

The explorations and field work of the Smithsonian Institute in 1920, while largely carried on in the United States, yet covered other widely separated regions, which are treated under the continental heads of Africa, Asia, South America, and Australasia. Coöperating with the National Park Service, Dr. J. Walter Fewkes continued his exploration of prehistoric ruins in the region of the Mesa Verde National Park. His researches disclose the existence of extensive ruins of structures used for religious rites. The principal are Sun Temple, Cedar Tower, Fire Temple, and Oak Tree House; in all the New Fire cult was probably practiced. Mr. N. M. Judd continued his archeological researches in the arid region north of the Colorado river, Arizona, especially in the Toroweap valley, and also of the caves in Kane County, Utah. Some exposed Pueblo ruins were of superior construction. Dr. W. Hough, National Museum, continued his ethnological work among the Hopis, whose advances towards modern civilization were specially noted. Mr. N. M. Judd, under the auspices of the National Geographic Society, explored in the Chaco canyon, New Mexico, eighteen major ruins of special importance. The arrangement of the rooms and the perfection of the masonry place these ruins among the finest prehistoric architectural art in the United States. In beauty and in technique these canyon dwellers reached a plane of æsthetic and social development unsurpassed elsewhere in the southwest. Mr. J. A. Jeancon initiated intensive archeological research in Taos valley, finding ruins at Llano, and also in La Jara and Dulce canyons. The Bureau of American Ethnology, in coöperation with the University of Texas, through Professors Pearce and Engerrand, made interesting investigations bearing on the life of the prehistoric aborigines of eastern Texas, in Bowie, Cherokee, Harrison, and other counties. Mr. G. Fowke pursued his investigations of the caves and mounds in Ozark County, Mo., Mr. W. E. Myer made researches in the Indian ruins in Davidson, Cheatem, and Williamson counties, Tenn., which promise future results of interest.

ADJACENT ISLANDS. In a biological expedition to southern Hayti, Dr. W. L. Abbott collected 201 bird-skins, while the botanist, E. C. Leonard, obtained nearly 10,000 specimens of plants, beside

many insects and land-shells. The Jamaica botanical exploration was made by the coöperation of the Smithsonian Institute, Arnold Arboretum, Gray Herbarium, Field Museum of Natural History, the University of Illinois, and the New York Botanical Garden. The botanists, W. R. Mason and E. P. Killip, obtained more than 10,000 specimens, representing about 1700 collection numbers. Over 800 numbers were from the Blue mountain regions, including nearly 200 species of ferns.

SOUTH AMERICA. Mr. A. S. Hitchcock, of the Smithsonian Institute, in coöperation with the U. S. Department of Agriculture, Gray Herbarium, and New York Botanical Garden, made a botanical exploration of British Guiana, 1919-20, where he collected four sets of 1134 numbers. Mr. J. W. La Varre made a journey from Manoa, Brazil, to Venezuela, via the Rio Negro, 1919-20. During his six months of jungle life he made for the National Zoölogical Park an interesting collection, in which were the rare, black-headed ouakari monkey, capuchin, and squirrel monkeys, egrets, ibis, parrots, etc.

Mr. W. R. Allen, 1920-21, of the Irwin Expedition of Indiana University, investigated the fish fauna of eastern Peru. His journeys extended as far as Iquitos, and covered the watersheds of the great rivers Ucayali, Marañon, and Huallaga. Mr. W. Beebe completed his fourth year of tropical research in British Guiana, for the New York Zoölogical Society. The research work of the American Museum of Natural History in the biological survey of the Andes is continued under G. K. Cherrie and G. Gill. Mr. P. E. Goddard investigated the ancient treasure grounds of Peru. Dr. H. H. Rusby started in July, 1921, to explore the extreme headwaters of the Amazon.

MISCELLANEOUS. Dr. J. Schmidt, in the Danish ship *Dana*, left in August for researches, at various depths, of the botanical and other physical phenomena of the north Atlantic ocean. Special attention will be given to the Sargasso sea; work began in the Bay of Biscay. Le Noix-Chateau, in the French steamer *Perche* made hydrographic studies of the Mediterranean gulfs of Gabes, Hammanet, and Tunis. Commander Charcot, of the *Pourquoi Pas?* located and landed on isolated Rockall, about 300 miles west of the Hebrides. It is the first landing in 60 years, and geological specimens thus obtained seem to indicate unique formation. Mr. C. M. Hoy, Smithsonian Institute, made from 1919 to 1921 natural history collections in Australia. In 1920 he sent to the Institute 400 mammals, about 140 species, 570 bird-skins, with smaller collections of reptiles, amphibians, insects, etc.

Among the miscellaneous activities of the American Museum were the ecological researches of H. E. Crampton mostly in the islands of the Pacific ocean, in its southeastern regions. The Whitney South sea expedition through its field representative, R. H. Beck, made extensive collections of birds at Christmas Island and in the Marquesas group.

EXPLOSIONS. See **BOILERS.**

EXPOSITIONS. No international world's fair was held during the year.

Among expositions to be held in the future that of Philadelphia commemorating the 150th anniversary of the Declaration of Independence in 1926 has developed most promisingly. In

November 1920, a meeting of 100 citizens was held in Philadelphia to advance this project and J. Hampton Moore appointed a committee to prepare a plan of procedure, which resulted in the presentation of a series of preliminary plans by Paul P. Cret, which in addition to the usual features, recommended the following permanent improvements: 1. The improvement of the river banks, which is becoming more and more a necessity and which would thus be realized at once and forever; 2. The creation of the needed new bridge between North and West Philadelphia; 3. The completion of the Parkway; 4. An opportunity to adjust the complicated railroad situation in that part of the city; and 5. In the case of those buildings which are only erected temporarily, an opportunity would be presented to determine their most desirable form and their most desirable location. The site proposed is the Fairmount Parkway and the banks of the Schuylkill river. Local financial support for preliminary studies has been granted and further action by Congress is pending.

Portland, Ore., has in progress plans for an exposition in 1925 in celebration of the anniversary of the first transcontinental railway and the development of hydro-electric power. The President and his cabinet have been invited to attend and Congress has authorized the participation of foreign nations.

Boston, Mass., has again agitated a world exposition in 1925 as a part of the commemoration of the landing of the Pilgrims at Plymouth Rock. The proposition will be laid before the Massachusetts legislature at its next session, and business, industrial, and educational leaders are said to be urging the scheme.

Of foreign expositions, that to be held in Rio de Janeiro from Sept. 7 to Nov. 15, 1922, commemorating the centenary of the independence of Brazil has received the support of Congress and an appropriation of \$1,000,000 for participation by the United States has been passed by the Senate.

The announcement is made of an industrial exposition that will be held in Tokyo in March, 1922, which will be the largest ever held in Japan. It will have halls for educational, agricultural, electrical, forestry, chemical, industrial, dyeing, fine arts, and botanical exhibits.

The Seventh National Exposition of Chemical Industries was held in the Eighth Coast Artillery Armory, New York City, during the week of September 12, and for details concerning it, see *CHEMISTRY, Industrial*.

The seventh annual British Industries Fair was held at the White City in London and in Castle Bromwich in Birmingham during February 21-March 4 and in Kelvin Hall in Glasgow during February 28-March 11. The goods displayed in London were organized in seven sections: Pottery and glassware; fancy goods, leather, and brush ware; office appliances, stationery, printing, and publishing; scientific instruments, photographic, and drug supplies, jewelry, cutlery, and silverware; toys, games, and sport goods; musical instruments and furniture. In the Birmingham section of the fair were shown fishing tackle, saddlery, guns, motor cycles, lighting, heating, and cooking appliances, ironmongery, engineering, and metals, hollow ware, brass foundry, and metal furniture, while at the Glasgow section were

displays of textiles of all kinds, wearing apparel, dyes, chemical products, and foodstuffs. The exhibits at these fairs were restricted to British productions and were shown by the manufacturers and not by the jobbers. There were 1250 exhibits in London and 640 in Birmingham. Arrangements are already in progress for a British Industries Fair to be held in London and Birmingham in 1922.

The usual trade fairs were held in France. The spring sample fair of Lyon was held in March and the autumn fair in October. At the last named the exhibits were devoted principally to the following classes of industries: Industrial supplies, light hardware, metallurgy, general engineering, industrial buildings, rubber goods, electrical engineering, general building, musical instruments, agricultural products, dry foodstuffs, liquid foodstuffs, agricultural machinery, colonial and imported products, foreign and colonial governments, transport and touring. In all there were 1027 exhibitors. There was also a trade fair held in Bordeaux during June 15-30. Early in 1922 a French Colonial Exhibition will be held in Marseilles. This exhibition, which will show the progress of France and her colonies during the last 16 years, will occupy more than 90 acres of ground.

The second annual Brussels commercial fair was held during April 4-21. The total number of exhibitors was 2327 as compared with 1602 in 1920. Belgian commerce was represented by 1493 exhibitors, which shows how the interest in the fair is steadily increasing, for in 1920 there were only 1173 Belgian entries. After Belgium the leading exhibitors were: French, 423 against 220 in 1920; English, 94 against 90 in 1920; and Dutch, 100 against 22 in 1920. Only 23 American firms were represented; this small number was due principally to the fluctuating exchange rate, which makes the sale of American goods difficult at present. It was estimated that nearly 1,000,000 persons visited the fair and on April 10 the attendance was 135,000.

The fifth Jaarbeurs or annual fair was held in Utrecht, Holland, during September 6-16 and this year it was international in character. It was held in the permanent building erected for the purpose. In April there was held in Amsterdam an exposition in which were shown the various products of the Union of South Africa. A special feature of the exposition was the showing of the various industries and views of the principal towns of South Africa by means of motion pictures.

The third Frankfort international fair was held in October, 1920, when 90,000 buyers visited the fair, of whom 10,000 were foreigners. It was reported that 3500 exhibits were shown compared with 3000 at the fair in May. The fourth fair was held during April 10-16 and was more successful than any of its predecessors. More than 100,000 visitors were reported.

The Leipzig Allgemeine Mustermesse, or general sample fair, for the spring of 1921 was held in conjunction with the technical fair in that city during the week beginning March 5. This fair excelled previous fairs as regards quality and quantity of exhibits. The total number of exhibitors at the general fair was about 13,000 as compared with the 12,150 at the general fair last autumn. The management was compelled

to refuse some 3000 applications for stand reservations on account of lack of space. About 3500 exhibitors were represented at the technical fair, a slight increase over the total of 3470 last fall. The total number of visitors at both the general fair and the technical fair was estimated at 130,000 as compared with the attendance of 104,000 at these combined fairs last autumn. A company has been organized in Leipzig for the purpose of erecting a permanent International Central World Commerce Palace, which will be the biggest thing the world has ever seen in the way of permanent industrial exhibitions. It is proposed to purchase from the city for 30,000,000 marks a site facing the railway station on which to erect combined exhibition halls and hotel covering 32,500 square metres, and to be ten stories high. Its cost is estimated to be 1,000,000,000 marks and will include 1000 showrooms, 4000 offices, two exchanges, conference, cinema, and festal halls, with gigantic sheds for motor cars. It will provide first-class hotel accommodations for 20,000 guests, who will have at their disposal among other things 10,000 house telephones, a roof terrace with gardens, swimming baths, and tennis courts. This scheme is inspired by the conviction that German industry will so develop that the Leipzig fair soon will reach treble its present proportions and will attract business men from all over the world.

The spring ostmesse or eastern fair, which was held in Königsberg, East Prussia, was characterized by considerable business in most of the branches represented. Good connections were established by the exhibitors with foreign buyers, especially those of Lithuania. This year's fair convinced its promoters of the fact that the impressive growth of this institution has had a far-reaching influence in the Baltic States as a medium of advertising for German products.

From Sweden there comes the report of the success of the fourth Swedish industrial fair, which was held in Göteborg during July 4-10. The number of exhibitors was 450. The third annual trade fair of Scania was held in Malmö during August 1-7, and its exhibits were restricted to Swedish products and manufactures. In Norway a second Norwegian industrial fair was held in Christiania during September 4-11.

An international fair was held in Riga, Latvia, during July 31-August 28 at which goods from all countries were shown. Its purpose was to aid in the restoration of the war-ruined industrial and agricultural conditions of that country.

A second sample fair was held in Prague, Czecho-Slovakia during February 28-March 8, at which there were 2306 exhibitors and 120,000 visitors. Subsequent to this fair, an exposition special train made a six weeks' tour of Roumania, Bulgaria, and Jugo-Slavia. The cars contained sample displays of products of Czecho-Slovak industries which are normally exported to the Balkans. An autumnal fair was again held in Prague during September 1-8. The success of both of these events was satisfactory, and plans are being made for a permanent building to be completed in 1926. Also there were sample fairs held in Reichenberg, Bohemia, during August

13-21 and one in Vienna, Austria (for the products of that country only), during September 11-17.

Reports from Italy show that a commercial exhibition was held in Catania during August 1-20. The first international Trieste sample fair was held during Oct. 10-Nov. 4, 1920, and the results were sufficiently satisfactory to warrant the holding of a second similar fair during Sept. 11-25, 1921. It is believed that this venture will open markets not only in the Balkan countries but also the Orient beyond. A second international sample fair was held in Milan in April, at which there were 3000 exhibitors. At its opening the statement was made that in extent it was only exceeded by the Leipzig fair. A sample fair was held in Naples during September. The Italian floating fair referred to last year (page 216) changed its plan so as to extend its itinerary to include Malta, Rhodes, Alexandria, Bengasi, and Tripoli, and in consequence postponed its departure until late in the year.

The Barcelona, Spain, sample fair held in October, 1920, was so successful in its results that the management held two fairs in 1921, one during April 1-10 and the other during September 1-10. The next fair will be international in character and will be held during March 15-25, 1922.

An exposition of Dutch products, industries, and facilities was held in Madrid, Spain, during May. A careful selection of manufactured products was shown, having in mind the diversity, utility, and beauty of the articles which the Netherlands can place in the markets of the world. There was also exhibited by pictures, drawings, and other means what the municipality of Amsterdam was doing in education, in hygiene, and in the construction of dwellings for the working classes. In addition to these exhibits the grounds about the building were utilized for products of the soil. Samples of the flower bulbs for which the Netherlands is famous were planted there, and at the time of the exposition they were in the full glory of their bloom.

The exposition of American products planned to be held in Buenos Aires, Argentina, under the auspices of the American National Expositions, which after several postponements (the *Year Book* for 1920, page 216) was in February not abandoned, but postponed indefinitely until the business conditions existing in Argentina should be improved and more favorable to American expansion. Argentina's first international dairy exposition was held in Buenos Aires during May 19-June 2. Notwithstanding a combination of unforeseen obstacles the plans for the exhibits in three sections: displays of cattle, ewes, and goats; instruments, machines, and installations for the dairy industry; and dairy products, were successfully carried out.

In an effort to stimulate trade in products manufactured in Winnipeg, Manitoba, Canada, an exhibition was held from May 9 to 14, at which goods produced in Winnipeg factories were shown.

EXTENSION, AGRICULTURAL. See AGRICULTURAL EXTENSION WORK.

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FAILURES. See FINANCIAL REVIEW.

FALKLAND ISLANDS. A British crown colony in the South Atlantic 300 miles east of Magellan Straits, comprising East Falkland with an area of 3000 square miles; West Falkland with an area of 2300; and about 100 small islands with an area of 1200; total 6500. In addition to this, there are the dependency of South Georgia estimated at 1000 square miles and the extensive domain known as the Dependencies of the Falkland Islands since the proclamation of July, 1908, including the South Shetland islands, the Graham islands and adjacent islands, South Orkney islands, Coats, Leopold, and Caird lands and presumably all the unknown seas and lands of a region in the Antarctic Zone extending as far as the South Pole. The chief towns of the Falkland Islands is Stanley with an estimated population of 950. South Georgia is celebrated as a whaling station. The population of the Falkland Islands proper, exclusive of South Georgia, was estimated in 1918 at 3252. The chief industry of the islands is sheep-farming but horses and cattle are raised. In 1918 the exports were £2,054,286 and the imports £939,937. The whale fisheries of the Falkland Island dependencies were followed by 46 vessels against 43 in 1919-20, all presumably fishing under British license. The catch around South Georgia was about 180,000 barrels of oil, while that around the Shetlands reached 212,000 barrels, two-thirds being taken by Norwegians. Other fishing brought the Antarctic total for 1920-21 to about 435,000 barrels.

FARLEY, MICHAEL F. See NECROLOGY.

FARM BUREAUS. See AGRICULTURAL EXTENSION WORK.

FARM ORGANIZATIONS. See AGRICULTURE AND AGRICULTURAL EXTENSION WORK.

FARMERS' INSTITUTES. See AGRICULTURAL EXTENSION WORK.

FARMS, NUMBER AND SIZE. See AGRICULTURE.

FARRAR, JAMES McNALL. Clergyman and author, died, June 22. He was born at Candor, Pa., June 16, 1853; graduated at Westminster College, Pa., 1875, and Princeton Theological Seminary, 1878. In the latter year he was ordained to the United Presbyterian ministry. After holding pastorates at Harrisville, Ohio, and at Philadelphia, Pa., he became pastor of the First Reformed Church at Brooklyn, N. Y. He was president of the general synod of the Reformed Church in America from 1905 to 1906, and president also of the board of domestic missions; and he was director of the Bible Training School in New York City. He wrote: *A Junior Congregation* (1908); *Little Talks to Little People* (1910); *Chats with Children of the Church* (1912).

FARRELLY, JOHN P. Roman Catholic bishop died, February 12. He was born at Memphis, Tenn., March 15, 1856; educated at Georgetown College, D. C., and in Belgium and Rome. He was ordained priest in 1880 and from 1893 to

1909 was spiritual director of the American College at Rome. On May 1, 1909, he was consecrated Bishop of Cleveland.

FAVERSHAM, MRS. WILLIAM. See OPP, JULIE.

FECHTELER, AUGUSTUS FRANCIS. Naval officer, died, May 26. During the few years immediately preceding his death he was commandant of the navy yard at Norfolk, Va. (1918), and of the fifth naval district (1919). He was born at Paderborn, Prussia, Sept. 1, 1857, but came to the United States in 1865 and graduated at the Naval Academy in 1877. By March, 1900, he had risen to the rank of lieutenant-commander. Down to that time he had made cruises in the Mediterranean and South Atlantic; cruised around the world through the Suez Canal; served with the office of naval intelligence at Washington; in the protection of seal herds in the Bering sea; in charge of the hydrographic office at San Francisco; and had taken part in the capture of Manila. He was made commander in 1905; captain in 1909; and rear-admiral, July 11, 1915. In 1910-11 he was in command of the *South Carolina* in the cruise to the English Channel and the Baltic. He was president of the board of inspection, 1911-13; placed in command of the division of battleships in the Atlantic fleet in July, 1915; commandant of the Norfolk navy yard, January, 1918, and of the 5th naval district, April, 1919.

FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA. Founded in 1908 for the purpose of rendering more effective coöperative service. It is a federation of thirty evangelical denominations, embracing approximately 140,000 local churches and more than 18,000,000 communicants. The purpose of the Council is to express the fellowship and catholic unity of the Christian Church, to bring the Christian bodies of America into united service, to encourage devotional fellowship, to secure a larger combined influence for the churches of Christ in all matters affecting the moral and social condition of the people. It does not exercise a directing control over the churches, but is rather their own agency for coöperation and common expression, directed and controlled by their representatives. The Council is made up of four hundred members elected by the denominational assemblies; it meets every four years and has an executive committee meeting annually. An administrative committee meets monthly and has representatives of other coöperative agencies carrying on specialized work for the churches. These are at present The Home Missions Council, the Council of Women for Home Missions, the Foreign Missions Conference, the Federation of Woman's Boards of Foreign Missions, the Sunday School Council of Evangelical Denominations, the International Committee of the Y. M. C. A., the National Board of the Y. M. C. A., the American Bible Society, the Committee on Coöperation

in Latin America, and the Student Volunteer Movement. It also serves as a connecting link between the Church and great social agencies, such as the American Red Cross, the United States Department of Public Health, and the Child Welfare Movement. National offices are maintained in New York, Washington, and Chicago; in addition the Council operates through several permanent commissions, as follows: Commission on Evangelism, Commission on the Church and Social Service, Commission on Christian Education, Commission on International Justice and Goodwill, Commission on Relations with the Orient, Commission on Relations with Religious Bodies in Europe, Commission on Relations with France and Belgium, Commission on Interchurch Federations, and Commission on Negro Churches and Race Relations. The function of the Commission on Evangelism has been to promote united campaigns of evangelism in the more important cities, assisting the churches in their organization for this work. The Commission on Church and Social Service has done special work in studying the relation of the Church to the present industrial unrest. The outstanding features of this work in 1921 have been the development of its Research Department, the extension of industrial conferences, and the work of the Study Committee on Community Organization. The year saw the establishment of an Information Service, through which bulletins containing facts relative to current social movements and conditions of industry are furnished twice monthly to the religious press and others. During the year reports were published on the Denver Tramway strike and the Deportation Cases of 1919-20. Several industrial conferences were held throughout the year. The Commission on Christian Education has for its purpose the coördination of the many Christian educational agencies. The Commission on International Justice and Goodwill interested itself in the Washington Conference on the Limitation of Armaments and inaugurated in September a comprehensive programme of educational publicity. In this connection many pamphlets and other educational matter were distributed. The Commission on Relations with the Orient aimed through its investigations to promote better understanding between the United States and China and Japan. Strong objection was made to much anti-Japanese legislation in California. The purpose of the Commission on Relations with Religious Bodies in Europe has been to afford to Protestant churches in this country contracts with church movement and development in Europe. The Commission on Relations with France and Belgium undertook reconstruction and relief work among the denominations in areas devastated by the war; relations have been established with the French Protestant Federation. The Commission on Interchurch Federations assisted in the formation and perfection of local councils of churches; many of these councils or federations of churches were added in 1921. The commission on Negro Churches and Race Relations, organized in the past year, concerns itself with the bringing about of fuller cooperation between the two races. The Committee on the War and the Religious Outlook was an outgrowth of the General War-Time Commission of the Churches, discontinued in 1919. It makes a study of the present state of religion as affected by the war. One volume was published

during 1921 by this committee, entitled *Christian Unity, its Principles and Possibilities*.

The Department of Religious Publicity issues a monthly paper known as the *Federal Council Bulletin*, and furnishes general religious news to the secular and religious press.

The programme of the Council was carried on in 1921 by a budget of approximately \$275,000. This amount is contributed by individuals interested in the work and no appeal has been made to the various denominations. The central office of the Federal Council is at 105 East 22d Street, New York City. The officers in 1921 were Dr. Robert E. Speer, President; Rev. Rivington D. Lord, recording secretary; Alfred R. Kimball, treasurer, and Rev. Charles S. MacFarland and Rev. Samuel M. Cavert, general secretaries.

FEDERAL TERRITORY. A territory under the Commonwealth of Australia lying within the state of New South Wales. Area about 940 square miles; population estimated, Jan. 1, 1920, at 1919. It was acquired by the Commonwealth in 1910 from New South Wales as the site of the new capital of Yass Canberra which was founded there in 1913 under the name of Canberra.

FEDERATED MALAY STATES. The following states under British protection, comprising a large part of the Malay Peninsula: Perak, 7800 square miles; population (1911) 494,057; capital, Taiping. Selangor, 3156 square miles; population, 294,035; capital, Kuala Lumpur (the largest city in the states with a population of about 60,000). Negri Sembilan, 2550 square miles; population, 130,199; capital, Seremban. Pahang, 14,000 square miles; population, 118,708; capital, Kuala Lipis. Total, 27,506 square miles with a population of 1,036,999; of whom 420,840 were Malays; 433,244, Chinese; and 172,465, natives of India. The estimated population in 1919 was 1,315,700. Down to 1918 there was a large immigration of Indians who were employed on the estates as laborers. For figures see preceding YEAR BOOK. In 1918 the number of Indian workmen on the estates began to decrease. In 1919 the English schools, maintained or assisted by the government, had an average attendance of 6143 boys and 1651 girls. The native schools numbered 390 with an average attendance of 16,851. The total number of schools was 533 with an average attendance of 27,323. The revenue of the states in 1919 was £8,415,758, and the expenditures, £8,245,645. The leading items of revenue in the order of their importance were as follows: Customs, licenses, railways, interest, war tax, land revenue, fees of court or office, and municipal revenue; and of expenditures: Railways; miscellaneous services, including war contributions; public works; personal salaries. The public debt in 1919 was £1,750,000. Chief products: Cocoanuts, rubber, rice, sugar, tapioca, pepper, gambier, and nipah palms; chief mineral production, tin. The main industries are the cultivation of rubber and the mining of tin. In 1919, 955,960 tons of timber of all kinds were taken from the forests, and the revenue of the forest department was £213,829. In addition to tin there are considerable mineral resources, including: Gold, lead, copper, iron, mercury, arsenic, manganese, and other minerals. The workmen engaged in mining at the end of 1919 numbered 113,107. No later figures for commerce were available than those given in the preceding

YEAR BOOK. The following table shows total imports and exports for 1918 and 1919, exclusive of bullion and specie:

	1918	1919
Imports.....	£8,720,921	£13,866,412
Exports.....	26,024,400	32,565,782

Vessels, excluding native craft, entered in 1919 numbered 3545 of 1,444,899 tons; cleared, 3538 of 1,444,124 tons. Native craft, entered and cleared, numbered 13,925 of 372,117 tons. In 1919 the railway line, opened for traffic, had a length of 1003 miles, and at the beginning of 1921 about 72 miles were under construction. At the head of the government in each state is a state council, consisting of the sultan, the resident and his secretary, and leading Malay chiefs and Chinese merchants; and the central government is under the control of a chief secretary and a high commissioner. High Commissioner at the beginning of 1921, Sir Lawrence Nunns Guillemard.

FEDERATION OF LABOR, AMERICAN. See LABOR, AMERICAN FEDERATION OF.

FENCING. The visit paid the United States by a British team added an international flavor to fencing in 1921. The occasion for the visit was the holding of the first of a series of matches for the Col. Robert M. Thompson Perpetual Trophy and for the Amateur Fencers' League of America Gold Medals. The U. S. team was victorious despite the fact that it met defeat in two of the three styles of competition. Bouts alone counted, and the fine showing the Americans made with the foils more than counterbalanced the successes scored by the Britons in the épée and sabre contests.

In the national senior championships Chauncey R. McPherson of the New York A. C. was returned the winner with both the épée and the sabre while Major F. W. Honeycutt of the Washington Fencers' Club gained the laurels with the foils. The New York A. C. fencers triumphed as a team with the sabre, but the Washington swordsmen gained the victory with both the épée and the foils. Miss Adeline Gehrig of the New York V. P. won the women's national title. The intercollegiate honors went to Columbia University, although the fencers of the U. S. Naval Academy carried off the three individual championships.

FERGUSON, THOMPSON B. See NECROLOGY.

FERNALD, CHARLES H. See NECROLOGY.

FERRARI, CARDINAL. See NECROLOGY.

FERTILIZERS. As stated in a communication from the Secretary of Agriculture to the United States Senate, Feb. 17, 1921, all conditions combined at that time to make the fertilizer outlook uncertain. Continued high prices for mixed fertilizers in the face of a break in prices of unmixed goods and a marked decline in buying power on the part of users of fertilizers here and abroad resulted in delaying the buying of fertilizers for the spring of 1921 at least three months, the market becoming largely a resale and competitive one, with very wide variations in price for the same material. Under such conditions stocks that had seemed inadequate at the end of 1920 developed into a surplus and the indications were that readjustment in the fertilizer trade would extend over at least one and perhaps two years.

The situation afforded a striking illustration of the dependence of the fertilizer trade upon the

price of farm products and the general condition of agriculture, the depressed condition of agriculture in Europe, and especially the slump in the price of cotton which usually supplies a great market for commercial fertilizer in this country, had their inevitable result in reduced buying power and use of fertilizers. Before the end of the year, however, the outlook for fertilizer sales was much improved, with potash, nitrates, and other materials which enter into mixed fertilizers, in larger demand. An important factor in the situation was the improved condition of the cotton and tobacco planters. The foreign demand for fertilizers had also materially improved.

There was much evidence during the year of the purpose of the fertilizer manufacturers to aid in putting the use of fertilizers on a sounder basis. For example, the National Fertilizer Association, in line with its policy for several years past, went on record by formal resolution as favoring "the manufacture and sale of high-analysis fertilizers containing not less than 14 units of plant food" and pledged itself to promote the use of such fertilizers. In commending this action, the Secretary of Agriculture made the following statement: "The stand taken by the fertilizer industry for the elimination of low-analysis mixtures and the useless, wasteful multiplicity of brands must ultimately react to the benefit of manufacturer and consumer alike." A number of well-planned conferences between representatives of fertilizer manufacturers and experiment station officials, extension workers, and others were held during the year, unusually at the experiment stations, for the purpose of promoting better understanding and coöperation between all the agencies directly concerned in efforts to promote the more efficient use of fertilizers.

A preliminary report of the census of 1919, which appeared during the year, showed that 599 establishments primarily engaged in the manufacture of fertilizers and 219 partly engaged in such manufacture produced in that year 8,291,000 tons of fertilizers valued at \$280,288,000. The census of 1914 showed 1238 establishments, of which 784 were primarily engaged in the manufacture of fertilizers, which produced 8,432,000 tons valued at \$153,260,000.

POTASH. The year started with the prospect of more abundant and cheaper potash and more discriminating use of potash fertilizer by farmers as a result of the lessons of the war.

Rapid progress was made in the rehabilitation of the German potash industry and in the exploitation of the large, rich, and easily accessible Alsatian potash deposits now owned by France. American manufacturers are reported to have contracted with the German and Alsatian producers for a large part of their future supply of potash.

The production of American potash, which amounted to about 48,000 short tons of pure potash (K_2O) in 1920, continued to fall off during 1921, and the outlook for the maintenance of a permanent American potash industry became very unpromising. The tariff bill introduced in Congress during the year carried a duty on potash designed to protect the American industry, but this, as well as all duties on fertilizing materials, was opposed by representatives of farmers on the grounds that experience has shown the wisdom of unrestricted imports of fertilizing materials.

The search for new sources of potash in the United States was continued by the United States Geological Survey and others during the year. Evidence has been discovered of deposits in Texas similar to those of Germany, but whether these are of commercial importance has not yet been determined. The United States Bureau of Soils made a survey of the blast-furnace industry with reference to production of by-product potash, similar to the one previously made of the cement industry. The kelp potash investigations of the bureau were discontinued.

NITROGEN. The year opened with sufficient nitrate in the United States for a year's normal consumption, one-half million tons in Europe and large stocks in Chile.

There was considerable activity in developing processes and plants for artificial fixation of nitrogen. Germany led in capacity for such production, although handicapped by shortage of coal and by the disastrous explosion which destroyed the nitrogen-fixation works of the Badische Anilin und Soda-Fabrik at Oppau on the Rhine, Sept. 21, 1921. Italy pressed the construction of hydro-electric plants, which will greatly increase her output of combined nitrogen. Norway continued to lead all competitors in hydro-electric (arc) production of fixed nitrogen. Minor amounts of fixed nitrogen were produced in Great Britain, Canada, and the United States. The Claude process of nitrogen fixation was actively developed in France. The world's capacity for supplying nitrogen compounds has been estimated to be over 1,500,000 tons annually, of which 57 per cent is derived from Chile nitrate, industrial by-products and the like, and the rest from artificial fixation processes.

Legislation, looking to the completion of the Muscle Shoals project for the production of nitrate for agricultural and other purposes was under consideration in Congress during the year, but failed of enactment. It was opposed by the National Fertilizer Association and others on the grounds that there is no need for this plant from a fertilizer standpoint, and in any case the Government should not manufacture general commodities in competition with private makers. On the other hand, the American Farm Bureau Federation and other farm organizations have favored its completion and operation in order to lessen the cost of fertilizers. Government work on the plant ceased July 1 and negotiations for its sale or lease for private operation were in progress at the end of the year.

The Fixed Nitrogen Research Laboratory of the War Department was transferred to the Department of Agriculture during the year, special attention being given to the recovery of ammonia from the mixture of hydrogen and nitrogen in the catalytic process.

The first unit of a nitrogen-fixation plant, having a capacity of 20,000 pounds of anhydrous ammonia per day, was completed and put in operation at Solvay, N. Y., during the year.

The comparative fertilizing value of the different synthetic nitrogen compounds continued to receive much attention in this country and abroad.

PHOSPHATE.—The United States Geological Survey reports that the production of phosphate rock in the United States in 1920 was 3,265,000 long tons as compared with 2,249,000 tons in 1919.

It is estimated that the production of acid phosphate in that year was about 4,500,000 tons. With actual short sales in the fall of 1920 and anticipated short sales in the spring of 1921, stocks accumulated on hand to such an extent that some of the acid plants having reached their storage capacity closed down. Apparently 1921 opened with sufficient stocks of phosphates on hand to meet the needs of the year.

There has been notable recent development of the western phosphate field and of the manufacture of the phosphate into acid phosphate with smelter by-product acid.

The discovery of phosphate deposits in Texas was reported, but their extent and value have not yet been determined.

The United States Bureau of Soils reports progress in developing the oil-burning furnace process of reducing low-grade phosphates. The use of such processes has been strongly advocated on the ground that they provide for the utilization of low-grade phosphates now going to waste, and effect an enormous saving in acid required for the production of acid phosphate.

FEYDEAU, GEORGE L. See NECROLOGY.

FICTION. See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE, ETC.

FIELD, HERBERT HAVILAND. Zoologist, died at Zurich, Switzerland, April 5. He was born at Brooklyn, N. Y., April 25, 1868, graduated at Harvard in 1888 and studied at universities in Germany and France. He was the founder and director of the *Concilium Bibliographicum*, and editor of the *Zoologischer Anzeiger* of Leipzig from 1903.

FIGUERAS, A. See NECROLOGY.

FIJI ISLANDS. A group of about two hundred fifty islands of which eighty are inhabited in the Southern Pacific, constituting a British crown colony. The largest island is Viti Levu with an area of 4053 square miles, and another large island is Vanua Levu with an area of 2130 square miles. Total area, including the island of Rotuma which since 1880 has been a dependency, 7083 square miles, or according to other authorities, 7435 square miles. The population in 1911 was 139,541; estimated, Jan. 1, 1919, 163,847 of whom 87,493 were Fijians and 62,640 were Indians. The Europeans in 1916 numbered 4552. The chief crops are: Sugar cane, coconuts, rice, corn, yams, rubber, etc. The trade for 1919 was as follows: Exports, £1,871,062; imports, £1,042,390. British possessions received £1,249,391 of the exports and supplied £912,477 of the imports. Revenue for 1919 was £415,432; and expenditure, £442,127. There is regular steamship connection with New Zealand, Australia, Canada, Honolulu, Tonga, and Samoa. The total tonnage of merchant shipping, entered and cleared, 1919, was 571,203 of which 530,674 were British. It is under a governor who is also the high commissioner for the Western Pacific. Governor at the beginning of 1921, Sir Cecil Hunter Rodwell.

FILTRATION. See WATER WORKS and WATER PURIFICATION.

FINANCIAL REVIEW. GENERAL CONDITIONS. The year was one of continued reaction in business, merging into widespread agricultural and industrial depression. Both domestic and foreign trade fell off sharply, production declined, and unemployment assumed serious proportions. Fall-

ing prices made it difficult if not impossible to avoid serious loss in working off swollen inventories accumulated during the period of postwar expansion, and commercial mortality rose to record high figures. Not until summer did lessening financial strain and growing evidence of price stabilization tend somewhat to relieve a picture which was destined to remain dull largely by reason of the all-pervasive agricultural gloom, of the continuing high costs of production and transportation, and of labor troubles—actual or threatened.

The various measures of business activity tell similar stories. Car loading ruled well below the amounts recorded in 1920, except for a brief period in the spring, for which comparison is vitiated by reason of the "outlaw" switchmen's strike of 1920. For the year as a whole they were some 13 per cent below loadings in 1920. Gross operating revenues of Class I railroads fell off \$600,000,000 to a total of \$5,625,000,000, despite rate increases granted late in 1920. Largely as a result of economies, however, net income increased from \$67,000,000 to \$616,000,000. Unfilled orders of the United States Steel Corporation continued the decline begun in August, 1920, and closed the year at 4,268,000 tons, or slightly more than half the figure for the preceding December. Production of iron, steel, and bituminous coal decreased greatly, but the output of petroleum was considerably increased. Despite a certain decline of prices, building expenditures in each month after April were larger than in 1920. With scarcely an exception, monthly exports and imports of merchandise were smaller than in the corresponding months of 1920. The total value of the year's foreign trade was just under 7 billions as compared with 13½ billions in 1920, and the excess of exports shrank from \$2,949,000,000 to \$1,977,000,000. Careful estimates indicate, however, that the decline in the physical volume of export trade was relatively slight.

The Bureau of Labor Statistics index of wholesale prices fell from 189 (as compared with 1913) in December, 1920, to 148 in June and closed the year at 149, which is practically the same as at the end of 1916. The decline within the year was thus 21 per cent. The price movement was highly irregular, however, and this irregularity, together with a somewhat tardy readjustment in retail prices, had a deterrent effect on business recuperation. In December the price indexes for clothing, fuel, building materials, and house furnishings were still from 85 to 118 per cent above the prewar level, while those for farm products and metals were only 13 and 19 per cent above it. Among specific commodities, pig iron declined from \$33.00 in December, 1920, to \$18.75 in December, 1921. In the same period No. 2 wheat fell from \$2.00 to \$1.14, cattle from \$9.50 to \$7.20, and hogs from \$9.10 to \$6.95.

Farm crops were generally smaller than in 1920, and low prices aggravated the farmers' difficulties. The yield of wheat was somewhat increased, but the total value of the crop was not two-thirds as great as in 1920. Cotton was low in yield as well as in price. The estimated value of 20 leading farm crops was \$5,419,000,000, as compared with \$8,708,000,000 in 1920, a decline of 38 per cent. Extraordinary measures were undertaken to afford relief to agricultural interests: An emergency tariff was imposed with a view to

protecting agricultural products from foreign competition, a \$50,000,000 banking pool to aid the live-stock industry was formed, and the powers of the War Finance Corporation were expanded, with the result that during the year it advanced upwards of \$125,000,000 in aid of agriculture and agricultural products. In the cotton belt the situation was improved by an autumn advance in the price of cotton, which accompanied a remarkable underestimate of yield by the government. But the buying power of the farmer as a class had been seriously curtailed, his liabilities had been swollen, and business dependent upon him for a market remained in a state of stagnation.

BANK CLEARINGS in 196 cities outside New York declined from \$208,000,000,000 to \$144,000,000,000, or 31 per cent. The relative decline in the larger cities was in the neighborhood of 20 per cent. Clearings in New York were \$194,000,000,000; in Chicago, \$26,000,000,000; in Philadelphia, \$20,000,000,000; and in Boston, \$14,000,000,000. Debits to individual accounts as reported by clearing house banks in some 150 cities aggregated \$398,000,000,000, or 16.5 per cent less than in 1920.

BANKS AND BANKING. In banking circles the year was one of contraction and liquidation, and was of special interest because it was the first extended period of contraction since the establishment of the Federal reserve banks. Between the last business day of 1920 and the end of November, 1921, Federal reserve notes outstanding declined by almost \$1,000,000,000 to \$2,366,000,000 but increased nearly \$80,000,000 thereafter as an incident of holiday requirements. Bills discounted for member banks of the reserve system declined from \$2,719,000,000 to \$1,160,000,000, or 57 per cent. The decline throughout the year was remarkably steady even during the crop-moving period, and reflected the improving position of member banks as well as the falling volume of general business and the recession in prices. The amount of war paper discounted fluctuated somewhat more than total discounts, but the proportion remained fairly constant at about 42 per cent. Bills bought declined sharply to \$19,000,000 at the end of July, but increased irregularly thereafter to \$114,000,000 at the end of the year. While the volume of prime bills coming into the market fell off with the decline of foreign trade, wider distribution of bills reduced the dependence of the open market upon reserve bank purchases.

The increase of gold holdings was almost uninterrupted throughout the year, and amounted to \$800,000,000, of which \$667,000,000 were supplied by importations of the yellow metal. Total reserves passed the three billion mark in mid-December, but showed a smaller increase than gold alone. The ratio of total reserves to net deposit and note liabilities rapidly mounted from 45.4 per cent to 73.1 per cent on December 7, and closed the year at 71.1 per cent. The position of the New York reserve bank was particularly strong. Inter-reserve bank re-discounts were smaller than in 1920, but the maintenance of the minimum legal reserve by some of the southern and western banks was conditioned on assistance from other reserve banks during most of the year. The aggregate of these inter-bank re-discounts fluctuated widely, from about \$100,000,000 at the beginning of the year to \$12,000,000 in March

and \$71,000,000 in September, but they disappeared from the accounts in the latter half of December.

National banks showed similar but less striking changes. Between the end of 1920 and Sept. 6, 1921, loans and discounts declined over 9 per cent to \$10,977,614,000. Re-financing of loans as indicated by borrowings in the form of bills payable and re-discounts declined from \$2,342,000,000 or nearly one-fifth of loans and discounts, to \$1,256,000,000 or about one-ninth. Total assets declined \$2,350,000,000 to a little more than \$19,000,000,000. Total deposits declined from \$16,277,000,000 to \$14,560,000,000, while demand deposits fell off \$1,150,000,000 to \$8,352,000,000. Reserve balances declined \$155,000,000 to \$1,030,000,000, but cash holdings alone fell off \$137,000,000 to \$358,000,000. Acceptances outstanding continued their decline, falling from \$375,000,000 to \$218,000,000.

If regard be had to banks outside reserve cities, the picture is not a little different. Loans and discounts there declined \$335,000,000, or about 6 per cent, to a total of \$5,096,000,000. Borrowings were reduced about \$63,000,000 to an aggregate of \$595,000,000, but were still nearly 12 per cent of loans and discounts. Total assets declined from \$9,720,000,000 to \$9,155,000,000, or \$565,000,000. Demand deposits declined \$467,000,000 to a total of \$3,768,000,000. Lawful reserve declined from \$421,000,000 to \$368,000,000, and actual cash holdings were reduced nearly one-fourth to \$206,000,000. Altogether these figures support the view that the problem of "frozen loans" has been most pressing in the agricultural districts.

Member banks in leading cities reduced their holdings of war paper by more than 40 per cent to \$512,500,000 during the year. Loans on security collateral increased slightly to \$3,165,000,000, and all other loans declined from \$9,224,000,000 to \$7,542,000,000, or 18 per cent. Owing to increases in security investments, however, total loans and investments decreased only 11 per cent to \$14,780,000,000. Borrowings at Federal reserve banks declined to \$698,000,000, or one-third of the indebtedness at the beginning of the year; at that figure only 4.7 per cent of loans and investments were being re-financed in this manner, as compared with 12.5 per cent a year before. Net demand deposits declined 7 per cent to \$10,174,000,000, and reserve balances declined in the same proportion.

American enterprise in the year evinced less interest in the development of foreign banking. Although one new international acceptance institution was organized, the \$100,000,000 Edge Act corporation which was undertaken in 1920 failed of consummation. Uncertain monetary and exchange conditions abroad resulted in the withdrawal of some fourteen branches or agencies of American banks in foreign countries. Moreover, domestic institutions organized to deal in foreign credit instruments in several cases dissolved or to a large extent withdrew from the foreign field. Bank credit previously extended on exporters' paper was curtailed, and difficulty in collecting bills, particularly in some Latin-American countries, resulted in serious embarrassment to trade. The attitude of domestic banks toward foreign credits, coupled with the easier credit terms offered by foreign shippers, seems to have permitted foreign trading countries to make some recovery of their relative position in world trade.

MONEY RATES. Federal reserve bank rates held steady at 7 per cent until May, when accumulating reserves in the Boston and New York banks initiated a series of reductions which left rates at $4\frac{1}{2}$ per cent and 5 per cent at the end of the year, though rates at Western banks were well maintained until their indebtedness to other reserve banks had been reduced to moderate amounts. In the open market in New York prime commercial paper opened the year at 8 per cent and thereafter gradually declined to 7 per cent at the end of April, and to 6 per cent at the end of July. The rate fell definitely below 6 per cent in October and closed the year at 5 per cent. Eligible 90-day bank acceptances sold at $6\frac{1}{4}$ per cent in the first week of the year and then fell with some regularity to $4\frac{1}{2}$ per cent at the close. The rate did not touch 6 per cent in the second half year, and prime bills and good commercial paper were alike relatively scarce. Early in the year, there appeared a relative shortage of demand for funds from satisfactory credit risks; the estimated volume of commercial paper outstanding continued to decline and showed at the end of November its first increase in over a year. Call loans on securities ranged from 6 per cent to 8 per cent in January, reached 9 per cent early in February and thereafter sagged irregularly until the rate touched 4 per cent on several days in the closing weeks of the year. Time loans on securities ranged from $7\frac{1}{2}$ per cent down to 5 per cent.

FOREIGN EXCHANGE. The varying influence of economic and political factors favored the development of heavy speculation on the foreign exchange markets, which exhibited noteworthy fluctuations during the year. Reparations, indebtedness of the Allied nations to the United States government, and the Washington Conference on Limitation of Armaments all played a part in market movements. To these factors are to be added declining foreign trade, industrial disturbances, unbalanced budgets, and paper money financing, as well as the continuance of an excess of imports, balanced only in part by gold shipments and security flotations. An export trade balance of the United States amounting to nearly \$2,000,000,000 was offset in part by gold imports of \$667,000,000 and new foreign loans of approximately \$550,000,000. After careful revision of its estimates of unfunded foreign trade balance the Federal Reserve Board sets the amount at "\$3,000,000,000 upward," of which at least \$700,000,000 appears to have been created during 1921.

From about \$3.54 at the opening of the year sterling cables rose rapidly during January and then crept past the \$4.00 mark in May. Thereafter the rate sagged, apparently under the influence of the British coal strike and the payment of German reparations in dollars purchased with sterling. After touching \$3.56 in July and early August, the market rose consistently throughout the remainder of the year to about \$4.21 $\frac{1}{4}$, at which it closed. This sustained strength during the final third of the year was the more remarkable since it is the season in which export bills in the New York market ordinarily depress the price of sterling, and reflected some improvement in the general international situation as well as further price declines in Great Britain.

Although the course of French francs was in general similar to that of sterling, they exhibited

rather more frequent fluctuations and did not maintain their gains so well. From around 5.80 cents cables advanced irregularly to the year's high of 8.82 cents in May, fell below 7 cents in September and again near the end of November, and closed the year at 8.13. Lire rose from about 3.40 cents to 5.72 in May, then sagged irregularly below 4 cents in September and October, and closed the year at 4.39, or a net gain of one cent in the year.

German marks opened the year at about 1½ cents, and touched the high point of 1.8 in January and again in May. Thereafter marks declined almost continuously under the pressure of selling occasioned by efforts to accumulate funds for reparations payments and influenced by a remarkably heavy paper inflation. The year's low of about 1/3 cent was touched in November, from which the quotation rose to above ½ cent toward the end of the year.

The Argentine quotation showed little net change from its opening at 33½ cents, but rose somewhat in the first quarter only to fall in July to slightly more than 28 cents. Canadian dollars showed an almost constant tendency to improve, and closed the year around 95 with a net gain of practically ten cents.

Gold movements of 1921 resulted in the largest net imports ever recorded in one year, viz., \$667,387,000. Exports were extremely small, totaling less than \$24,000,000. Imports from the United Kingdom aggregated \$202,000,000, and represent in large part South African gold. Purchases of this gold on the London market were almost entirely for account of the United States. France contributed \$190,700,000 to our gold holdings; most of this amount was directly or indirectly gold of Russian origin. Imports from Sweden amounting to \$66,350,000 were also largely derived from Russia; exports of \$2,600,000 to that country probably represented Russian gold returned for want of the official mint stamp of a friendly government, which is required by the United States assay office. Together these three countries furnished net imports of \$456,500,000, or more than two-thirds of the total. Other import sources of supply were Canada with \$34,000,000 net; British India, with \$31,000,000, aside from considerable quantities reaching this country via London, Germany, and the Netherlands, with \$20,000,000 each; China with \$18,000,000; Australia, \$14,000,000; and Colombia, \$12,000,000.

There was a net importation of silver amounting to \$12,000,000, as compared with a net exportation of \$25,000,000 in 1920. About two-thirds of the imports were from Mexico. The United States mint has continued to absorb the domestic output of silver under the purchase provisions of the Pittman Act.

Security issues in American markets, as compiled by the *Commercial and Financial Chronicle*, aggregated \$4,231,000,000 in 1921 as compared with \$4,010,000,000 in 1920. Excluding refunding issues, new capital flotations were \$3,575,000,000, or about \$60,000,000 less than in 1920. New corporate issues amounted to \$1,822,000,000, or about two-thirds the amount issued in 1920. Issues of railroad and other public utility securities increased considerably in amount, but industrial issues declined more than one-half. The altered character of the market for corporate securities last year as compared with that of 1920 is indicated

by the reduced amount of stock financing. In 1921 this amounted to \$268,000,000, or one-seventh of the total; in 1920 new stock issues reported were \$1,035,000,000, or more than one-third of aggregate corporate flotations.

Issues of new domestic municipal bonds were never before so large. These aggregated \$1,194,000,000, or three-fourths greater than in 1920. Issues of new foreign government and municipal securities in this market aggregated \$436,000,000, as compared with \$253,000,000 in 1920. Other estimates show a total of \$550,000,000 of foreign securities, including corporate as well as public financing.

New and refunding issues of 1921 are classified by source in the following table, amounts being stated in thousands of dollars:

	New	Refunding	Total
Corporation.....	\$1,821,919	\$597,903	\$2,419,822
Stocks.....	(268,442)	(9,733)	(278,175)
Bonds and notes.....	(1,553,477)	(588,170)	(2,141,647)
Federal Farm Loan.....	121,940		121,940
Domestic Municipal.....	1,194,441	8,580	1,203,032
Foreign.....	436,526	50,000	486,526
Government.....	(335,270)	(50,000)	(385,270)
Municipal.....	(101,256)		(101,256)
Grand Total.....	\$3,574,827	\$656,493	\$4,231,320

Dividends on industrial shares as reported for 1921 aggregated \$541,000,000 as compared with \$602,000,000 in 1920. Steam railroad and traction dividends declined \$10,000,000 to \$374,000,000 in 1921.

BUSINESS FAILURES. Ultimate business liquidation in the form of failure gave striking evidence last year of the scope and intensity of the readjustment following the post-armistice boom. This movement was merely a continuation of that begun in 1920, although the number of failures declined somewhat during the first five months of the year. After May, however, the increase in monthly failures was almost unbroken, and the total reached 2380 in December. The year's total of 19,982 failures is more than double that of 1920 and is the highest on record, being 5 per cent greater than the previous high record set in 1915. Aggregate liabilities were \$750,000,000, thus exceeding by 76 per cent the high record established in 1920 and practically doubling the figures for 1893, 1907, and 1914. It appears, furthermore, that an unusual number of virtual failures not here recorded were settled by private compositions or were carried along by creditors' committees. Among geographical sections the South appears to have suffered most. Failures there were 6167, nearly a third of the total, and liabilities exceeded \$203,000,000, or more than those reported from any other section.

The total of large failures was also greater than ever before recorded, and the number of bank suspensions has been exceeded but once in the preceding forty years. In the first eleven months of 1920 there were 320 bank suspensions involving liabilities in excess of \$162,000,000, and over 700 failures of industrial or commercial concerns each having liabilities in excess of \$100,000. Altogether, these large failures (including those among banks) accounted for 6 per cent of the number and 60 per cent of the liabilities reported to Bradstreets during the eleven months.

Over against this sombre picture should be set certain considerations bearing on the relative

severity of the crisis. The number of business houses has greatly increased in the past few years, and despite the weakness of new concerns, the proportion failing (.97 per cent) was less than in 1915. Average liabilities were considerably less than in 1920, and the ratio of assets to liabilities was relatively large, having been exceeded in but four recorded years. Above all, despite the large number of bank failures, there was nothing like a banking panic. The Federal Reserve System has amply justified itself, although it did not—and could not—prevent widespread liquidation from following in the wake of such abnormal business stimulation as characterized the boom period.

GOVERNMENT FINANCES. During the fiscal year ending June 30, 1921, ordinary receipts of the United States government aggregated \$5,625,000,000, out of which were defrayed expenditures of \$5,538,000,000, including \$422,000,000 applied to reduction of the principal of the public debt. For the fiscal year 1922, receipts are estimated at \$3,968,000,000, ordinary expenditures at \$3,605,000,000, and public debt expenditures chargeable against ordinary receipts at \$388,000,000. A deficit of about \$25,000,000 is thus to be expected on the current fiscal year's operations.

On the calendar year basis, ordinary receipts during 1921 aggregated \$4,971,877,000, of which \$2,817,258,000 represented collections of income and profits taxes imposed in the main upon income of the calendar year 1920. Total expenditures chargeable upon these receipts were \$5,058,013,000, including \$612,193,000 devoted to reduction of the public debt. The net deficit on the calendar year's operations was thus about \$86,000,000.

The following table classifies receipts and expenditures by six months' periods from July 1, 1920, to Dec. 31, 1921, and gives for comparison the estimates for the fiscal year ending June 30, 1922.

offering of three-year 5½ per cent Treasury notes was largely oversubscribed, and some \$311,000,000 were allotted. Again in September the Secretary invited subscriptions to a similar issue bearing interest at 5½ per cent. Allotments totaled \$390,700,000. Thus provision was made for some \$700,000,000 of Victory notes and certificates of indebtedness. The total reduction in the maturity value of short-term debt accomplished during the year was \$456,000,000; but the reduction of debt maturing before June 30, 1923, was \$1,133,000,000. The interest-bearing debt as a whole declined from \$23,749,540,000 to \$23,188,800,000. The classification of the debt and the amounts outstanding at the beginning and end of the calendar year are indicated in the table on page 227.

STOCKS AND BONDS. Shares sold on the New York Stock Exchange numbered approximately 171,000,000 as compared with 223,000,000 in 1920. Monthly sales were lower than in 1920 except in May and June. Maximum monthly sales were recorded in June (18,000,000 shares); minimum in July (9,000,000 shares). There were only 13 million share days, fewer than in any year since 1914. There were 83 such days in 1920. The price of Stock Exchange seats ranged between \$79,000 and \$100,000. The high price of the year had been exceeded only in 1919 and 1920. The par value of bonds sold on the exchange aggregated \$3,517,000,000, or more than one-tenth less than in 1920. United States obligations made up 70 per cent of the total as against 80 per cent in 1920. Monthly sales of all bonds ranged from \$225,000,000 in February to \$418,000,000 in December, and from July to November ruled larger than in 1920.

Price movements on the Stock Exchange in the main reflected the course of the business cycle as judged by the professional element, rather than

Ordinary receipts	July 1, 1920, to Dec. 31, 1920	Jan. 1, 1921, to June 30, 1921	July 1, 1921, to Dec. 31, 1921	Fiscal year 1920-21	Estimates fiscal year 1921-22
	(thousands of dollars)				
Customs.....	\$ 150,097	\$ 158,467	\$ 147,008	\$ 308,564	\$ 275,080
Income and Profits Tax.....	1,628,204	1,577,842	1,239,416	3,206,046	2,110,000
Other internal revenue.....	770,064	620,317	688,746	1,390,381	1,104,500
Miscellaneous revenue.....	419,154	300,788	239,293	719,942	478,954
Total.....	\$2,967,519	\$2,657,414	\$2,314,463	\$5,624,933	\$3,968,454
<i>Expenditures, ordinary</i>					
Legislative and executive offices.....	\$1,956,425	\$2,069,679	\$1,329,668	\$4,026,105	.....
Purchase of foreign obligations.....	57,202	16,695	.....	73,897	.....
Purchase of Farm Loan bonds.....	15,968	813	.....	16,781	.....
Interest.....	478,419	520,726	508,239	999,145	.....
Total Ordinary.....	\$2,508,014	\$2,607,913	\$1,837,907	\$5,115,928	\$3,604,980
<i>Public debt expenditures chargeable against ordinary receipts</i>					
Sinking fund.....	\$ 20,390	\$ 240,710	\$ 228,047	\$ 261,100	\$ 272,442
Bond purchases from foreign repayments.....	40,030	33,909	16,147	73,939	30,500
Bond redemptions—estate tax.....	8,686	17,664	12,317	26,349	25,000
Retirements from reserve bank franchise tax.....	.....	60,725	2,619	60,725	60,000
Miscellaneous retirements.....	135	33	22	168	.....
Total public debt.....	\$ 69,240	\$ 353,041	\$ 259,152	\$ 422,281	\$ 387,942
Grand Total.....	\$2,577,254	\$2,960,954	\$2,097,059	\$5,538,209	\$3,992,922

On Jan. 1, 1921, the maturity value of the short-term debt amounted to \$7,521,000,000, of which \$4,226,000,000 were Victory notes redeemable in 1922 and payable May 20, 1923. During the year the task of refunding this short-term debt was definitely undertaken. In June an

by the public, which was in the market to any great extent during the year. Unsatisfactory business conditions led to dividend cutting, and stocks weakened throughout the first quarter. The announcement of wage readjustments in the steel and railroad industries, as well as agreement on the

	Jan. 1, 1921	Dec. 31, 1921
Prewar Debt (including Postal Savings).....	\$ 883,622,190	\$ 883,784,050
Liberty Loans.....	15,286,107,813	15,207,389,400
Victory Notes.....	4,225,970,755	3,548,289,500
Treasury Notes.....		701,897,700
Treasury Certificates.....	2,592,885,450	2,195,595,000
War Savings Securities (net cash receipts).....	760,953,781	651,844,374
Total interest-bearing debt.....	\$23,749,539,989	\$23,188,800,024
Debt on which interest has ceased.....	7,441,490	11,867,140
Non-interest-bearing debt (circulating notes).....	225,242,689	238,317,187
Total gross debt.....	\$23,982,224,168	\$23,438,984,351

question of German reparations, worked an improvement in financial sentiment, and the year's high price of 73.13 for 50 railroad and industrial shares (as reported by the *Annalist*) was reached in May. The course of prices in the two groups was, however, quite dissimilar. Twenty-five rails reached a low price of 47.50 in June, after a continuance of disappointing earnings and of dividend reductions. Thereafter relative improvement in the railroad situation gave rails a somewhat stronger position than industrials, and there resulted a fairly steady climb toward the year's high price of 56.54, attained in November. Industrials reached their low of 66.24 in August, and although business conditions then gave some indication of approaching stabilization, dividend prospects were by no means bright. The improvement in the general political and economic situation afforded basis for the rise which occurred during the last four months, but industrials closed the year at prices substantially below those of May.

Two potent factors affected the market for bonds, which was particularly strong during the latter part of the year. The first of these factors was the general business situation, which inclined investors away from stocks and toward bonds; the second was the decline in money rates, which tends to be automatically reflected in bond prices. Moreover, easy money rates induced a considerable amount of speculation in bonds. Starting the year at about 69, the average price of 40 bonds slowly receded to a low point of 67.56 in June. From about that time on, falling money rates and continued demand for investment securities brought prices gradually upward to the year's high of 76.31, reached at the end of November. December prices were only fractionally lower.

FINLAND. An independent republic since Dec. 9, 1917, formerly a grand duchy of the Russian empire, situated in the northwestern part of Europe on the Gulfs of Finland and Bothnia. Capital, Helsingfors.

AREA AND POPULATION. Area in 1915, estimated at 125,689 square miles, but after recent accessions of territory, placed at 144,249 square miles. Population (1918), 3,331,814. The urban population in that year was 522,608, and the sex distribution was: Males, 1,646,227; and females, 1,685,587. The Finnish-speaking in 1915 numbered 2,565,742; and the Swedish-speaking, 344,366. The great majority of the population are Lutherans, 3,283,035 at the end of 1917. In 1919 Helsingfors along with Sveaboar had a population of 187,544, but other estimates placed it at over 200,000. Other large cities: Abo, 56,168; Tammerfors, 46,353; Viborg, 29,753; Vasa, 24,776; Vleaborg, 21,940. The movement of population in 1918 was as follows: Births, 79,494; deaths, 95,102; marriages, 15,008. This, however, was a year of warfare, and in 1916-17 the excess of births over

deaths was 25,076 and 22,183, respectively. From 1893 to 1918 the emigrants from Finland numbered 267,755, most of them coming to the United States.

EDUCATION. No later figures were available for education than those given in the preceding YEAR BOOK for the school year 1919-20. Each parish has at least one elementary school. For secondary education there are lyceums, middle schools, etc., and for higher education there is the university at Helsingfors, and a Swedish university opened at Abo in 1919.

PRODUCTION. Agriculture is the chief occupation, although only 8.5 per cent of the surface is cultivated. Among the chief crops are rye, barley, oats, hay, potatoes, and wheat. One of the chief resources of the country is the state forest production. In 1921 the timber was estimated at 13,213,874,240 cubic feet, comprising about 307,000,000 trees of which 70 per cent were pine.

ECONOMIC CONDITIONS. Precise figures for the cost of living in Finland in 1921 were not available, but the following information from the United States Bureau of Foreign and Domestic Commerce indicates conditions down to the beginning of that year. In 1921 the prices of foodstuffs and certain other necessary articles had increased over 1913 at rates varying from 423.1 per cent to 1668.9 per cent, the lower increase being shown by fish and potatoes, and the higher by grain, meat, and dairy products. The index figure of prices as reckoned from a normal basis of 100 in July, 1914, stood in December, 1920, at 1103.2 per cent. It was not till the early months of 1921 that the lower prices common in other countries extended to Finland.

COMMERCE. The following tables from the *Statesman's Year Book* of 1921 shows the commerce for five years, and the value of the chief exports and imports in Finnish marks for 1919 and 1920.

	1916	1917	1918	1919	1920
Imports.....	962,814	1,231,930	504,612	2,509,900	3,620,400
Exports.....	510,580	444,859	226,843	880,400	2,906,600
Imports					
Cereals.....			543,205,512		534,229,553
Coffee, tea, sugar, etc.....			363,516,224		522,438,400
Textiles.....			215,312,686		64,333,284
Leather.....			110,839,487		121,895,224
Oils and fats.....			202,995,125		196,983,122
Machinery.....			178,872,220		287,623,377
Metals.....			161,575,484		529,764,108
Spinning materials.....			110,310,513		314,419,643
Exports					
Timber.....			554,446,581		1,633,350,200
Pulp and paper.....			217,831,935		1,080,664,095
Horses.....			2,320,200		1,545,275
Meats.....			14,287,196		70,370,899
Hides and leather.....			22,437,612		
Gums and resins.....			4,545,588		6,534,577
Tar.....			2,603,181		
Matches.....			2,407,805		

FINANCE. The state budget of Finland for 1921, submitted to the Finnish Diet on Oct. 30, 1920, for its approval, was finally passed on March 12, 1921, with the ordinary revenues estimated at 2,154,855,650 marks (\$53,871,391) and extraordinary revenues at 76,291,000 marks (\$1,907,275), or a total of 2,231,146,650 marks (\$55,778,666), while the ordinary expenditures were placed at 1,808,631,305 marks (\$45,215,783) and extraordinary expenditures at 430,473,100 marks (\$10,761,827), or a total of 2,239,104,405 marks (\$55,977,610). Thus there was a deficit of 7,957,555 marks (\$198,944), which the Diet decided to make up from the state capital funds, amounting to about 120,000,000 marks.

In the Finnish budget for 1922, in which the revenue was estimated at 2,065,660,000 Finnish marks and the expenditures at 1,885,340,000 marks, 31 per cent of the revenue was due to taxes, of which direct taxes constituted 30 per cent. Other items of revenue were: From forestry, 123,700,000 marks; from the state railways, 440,000,000 marks; from import duties, about 555,000,000 marks; and from export duties and export taxes, 25,000,000 marks and 12,000,000 marks, respectively. From the alcohol monopoly a revenue of 43,700,000 marks was expected, and the revenue derived from the new excise on matches was calculated to yield about 25,000,000 Finnish marks. Of the expense items, the largest amount, 512,000,000 marks, was for the Ministry of Traffic. The Ministry of War was allotted the sum of 283,000,000 marks; 245,000,000 marks were set aside for general expenses. Some 237,000,000 marks were to be used for the state debt, and 172,000,000 marks were given for ecclesiastical and educational purposes. Military expenses amounted to approximately 15 per cent of the total, while cultural expenses were allotted only 9 per cent. Simultaneously with the budget, the government made out a new customs tariff the main object of which was to protect native industries.

COMMUNICATIONS. On Jan. 1, 1921, the railway mileage was 2685, all of which belonged to the state, with the exception of 186 miles. The merchant marine on that date was 5358 vessels of 619,790 tons.

DEFENSE. The military system is based on the law of January, 1919, as modified in July, 1920, and comprises an army of three divisions with an independent brigade of troops of all arms and a brigade of cavalry. Besides this standing army there is a reserve of able-bodied men between seventeen and forty-five years of age and also a civil safety corps. The strength of the volunteer army was placed at about 105,000; the civil safety corps, 100,000; and the regular army, 36,000. See NAVAL PROGRESS.

GOVERNMENT. After the declaration of independence by the Finland house of representatives, Dec. 6, 1917, the new state was recognized by most of the Powers. According to the constitution the executive power is vested in the president elected for six years by popular vote and in a cabinet of 12 ministers; and the legislative power in a house of representatives elected by universal male and female suffrage of all persons who have reached their twenty-fourth year. Every person qualified to vote is eligible to the house of representatives. President at the beginning of 1921, K. J. Stahlberg. Ministry

appointed in April, 1921: Prime Minister, Dr. Juho Vennola; Foreign Affairs, Dr. Eino Rudolf Woldemar Holsti; Finance, Risto Ryti; Interior, Heikki Ritavuori; Justice, Dr. Heimo Helminen; Education, Niilo Liakka; War, Lieutenant-Colonel O. Hämäläinen; Communications, Erkki Pullinen; Commerce and Industries, Erkki Makkonen; Social Affairs, Vilkku Joukahainen; Agriculture, Kyösti Kallio; Minister without Portfolio, Juho Niukkanen.

HISTORY. In eastern Karelia at the beginning of November a serious uprising was reported. This region, chiefly inhabited by Finns, had been left under Russian administration by the terms of the treaty with Finland, signed earlier in the year. The Finns denied all complicity with the disorder, but this was not believed by the Russian government, which addressed a note to Finland, December 7, sharply demanding: the disbanding of all Karelian insurgent forces; the cessation of Finnish military, financial, and moral support of the rebels; and the expulsion from Finland of all Russian counter-revolutionists. The note declared that Finland's proposal just received to submit the question to the League of Nations was unfriendly to the Russian government. Toward the close of the year mobilization of a large force of Soviet troops against the Karelian insurgents was reported. Meanwhile, the Finnish element in the region had set up an independent government. See LATVIA.

FIRE INSURANCE. See INSURANCE.

FIRE PROTECTION. There was little of encouragement to be noted in connection with the fire situation in the United States and Canada during the year 1921. There were no important conflagrations but a vast total of distributed losses due to defective building. Carelessness and inadequate protection, not to mention the ever present moral hazard. Under various conditions of housing, high cost of building, increased taxes, etc., comparatively little could be done to improve the situation although insurance and fire department officials throughout the country were zealous in their efforts and there were no retrograde steps.

AMERICAN FIRE LOSSES IN 1921. The fire loss record of the United States for the year 1921 was exceeded only in 1906, the year of the great San Francisco conflagration. The year's losses by fires in the United States and Canada as compiled from the daily records of *The Journal of Commerce* (New York) reached a total of \$332,654,950. An amount greater even than the 1920 total of \$330,853,925, when higher valuations on property of all kinds acted to increase the total. There was no great conflagration in 1921 and the fact that the fire losses came from all sections of the country and serve to build up the vast total mentioned was a particularly serious matter.

Furthermore, study of the statistics revealed that the fires of 1921, which, in each instance, resulted in an estimated property loss of \$10,000 or over, were greater in number than in 1920 by over 10 per cent. In 1921 there were 3855 fires reported where the loss reached or exceeded \$10,000 as compared with 3457 such fires in 1920, 2904 in 1919, and 2943 in 1918.

Naturally the moral hazard showed its influence and the wave of excessive fire losses started in September, 1920, when business depression became pronounced. This continued in force until

the end of the year, as may be seen from the accompanying table of fire losses by months for the past three years:

	1919	1920	1921
January.....	\$ 29,446,325	\$ 37,912,750	\$ 35,319,950
February.....	26,891,950	26,631,500	25,888,850
March.....	22,201,900	27,597,700	28,581,100
April.....	15,484,750	22,108,750	22,178,900
May.....	16,516,300	25,440,300	23,956,800
June.....	20,475,750	25,743,900	29,000,700
July.....	20,198,600	26,135,825	33,355,750
August.....	24,526,000	17,930,800	25,829,000
September.....	29,063,500	25,630,050	26,502,400
October.....	13,358,400	28,331,100	27,955,350
November.....	23,450,800	28,093,350	26,178,600
December.....	27,366,500	41,197,900	28,907,550
Year.....	\$269,000,775	\$330,853,925	\$332,654,950

The 1921 fire losses brought the total fire waste of the United States and Canada during the forty-three years (1879-1921) during which statistics were maintained, to the remarkable sum of \$7,695,475,695, or an average of \$178,964,551. These losses, must be considered as based upon steadily increasing property values exposed to fire hazards and the ever-changing burning ratio. The fire losses of \$164,347,450 in 1901 to take a single instance resulted in as high a burning ratio to the aggregate value of all property in that year as the \$332,654,950 loss of 1921 is to the valuations of that year. The accompanying table gives the fire loss record by years since 1879:

1921.....	\$332,654,950	1899.....	\$ 136,773,200
1920.....	330,853,925	1898.....	119,650,500
1919.....	269,000,775	1897.....	110,319,650
1918.....	317,014,385	1896.....	115,655,500
1917.....	267,273,140	1895.....	129,835,700
1916.....	231,442,995	1894.....	128,246,400
1915.....	182,836,200	1893.....	156,445,875
1914.....	235,591,350	1892.....	151,516,000
1913.....	224,728,350	1891.....	143,764,000
1912.....	225,320,900	1890.....	106,893,700
1911.....	234,337,250	1889.....	123,046,800
1910.....	234,470,650	1888.....	110,885,600
1909.....	203,649,200	1887.....	120,283,000
1908.....	238,562,250	1886.....	104,924,700
1907.....	215,671,250	1885.....	102,818,700
1906.....	459,710,000	1884.....	110,108,600
1905.....	175,193,800	1883.....	110,149,000
1904.....	252,554,050	1882.....	84,505,000
1903.....	156,195,700	1881.....	81,280,000
1902.....	149,260,850	1880.....	74,643,400
1901.....	164,347,450	1879.....	77,703,700
1900.....	163,362,250		
Total for 43 years.....			\$7,695,475,695

FIRES DUE TO DEFECTIVE CHIMNEYS AND FLUES. The actuarial bureau of the National Board of Fire Underwriters compiled data regarding fires from defective chimneys and flues in dwelling houses during the past six years, 1915 to 1920. These statistics showed a total loss on insured property of \$71,037,084, and it was estimated that the additional losses unreported or upon uninsured property would probably amount to at least 25 per cent more, making a total of \$88,706,355 for the entire United States. It was stated that probably no single fire hazard affected the home and family more closely than the defective chimney and flue, yet hundreds of thousands of such chimneys and flues were in existence and new ones were being built every

day upon unsafe specifications. Defective chimneys and flues were responsible for greater losses by burning in residences than any other factor excepting exposure, which must be considered an effect and not a cause of fire. In one typical year it was found that 12.4 per cent of all dwelling house fire damage was chargeable to defective chimneys and flues, and this figure represented 66.6 per cent of all the losses in all occupancies from this cause. In rural communities where fire protection is scant or entirely lacking, so that a fire once started becomes serious, this hazard is a very important matter.

The summary by States of the dwelling house losses resulting from defective chimneys and flues during the past six years from 1915 to 1920, as compiled by the actuarial bureau of the National Board of Fire Underwriters is as follows:

Alabama.....	\$1,302,432	Nebraska.....	\$762,208
Arizona.....	100,967	Nevada.....	44,437
Arkansas.....	1,116,637	N. Hampshire.....	920,018
California.....	2,733,742	New Jersey.....	2,471,259
Colorado.....	521,824	New Mexico.....	219,685
Connecticut.....	1,195,969	New York.....	6,060,168
Delaware.....	109,360	N. Carolina.....	883,391
D. of Columbia.....	26,875	N. Dakota.....	547,845
Florida.....	674,765	Ohio.....	2,963,035
Georgia.....	1,448,420	Oklahoma.....	1,023,233
Idaho.....	503,465	Oregon.....	706,902
Illinois.....	5,068,273	Pennsylvania.....	4,032,504
Indiana.....	2,349,535	Rhode Island.....	487,578
Iowa.....	1,836,654	S. Carolina.....	636,773
Kansas.....	1,322,097	S. Dakota.....	498,913
Kentucky.....	1,587,917	Tennessee.....	2,194,442
Louisiana.....	867,846	Texas.....	2,332,342
Maine.....	1,537,701	Utah.....	284,962
Maryland.....	953,107	Vermont.....	524,223
Massachusetts.....	3,074,860	Virginia.....	1,103,631
Michigan.....	3,268,954	Washington.....	1,744,801
Minnesota.....	1,603,582	W. Virginia.....	648,680
Mississippi.....	1,110,394	Wisconsin.....	1,718,562
Missouri.....	3,062,646	Wyoming.....	140,468
Montana.....	649,002		
Total.....			\$71,037,084
Plus 25 per cent for unreported losses and those upon uninsured property.....			17,759,271
Total for United States.....			\$88,796,355

STATISTICS OF FIRES. The Committee on Statistics and Origin of Fires of the National Board of Underwriters presented its annual report on May 26, 1921. From this report there have been abstracted as usual statistics of fires in the larger American cities for 1920. Attention in particular may be directed to the per capita losses which for 1920 amounted to the high figure of \$91.31 for Sheboygan, Wis., with Galveston, Texas, second with \$50.19, the average for the entire United States being \$4.73 per capita. The report calls attention to the fact already noted in the YEAR BOOK for 1920 that the inflated value of merchandise and materials was of course in a measure responsible for the vast total loss while the readjustment of business to existing condition doubtless was accompanied by incendiary fires. However, the annual loss in the United States was excessive as shown by statistics compiled for the five-year period 1915-20, during which time Cedar Rapids, Iowa, showed the largest average per capita of loss of \$12.72, with Norfolk, Va., second with \$10.73, the per capita fire loss for the United States for the same period averaging \$2.71.

COMPARATIVE FIRE LOSSES

	Population	Total loss	Per capita
1916—Whole country.	102,017,312	* 214,530,995	2.10
329 cities.....	36,055,568	† 79,440,658	2.20
1917—Whole country.	103,635,606	* 250,753,640	2.42
327 cities.....	36,557,011	† 89,483,398	2.45
1918—Whole country.	105,253,300	* 290,959,885	2.76
328 cities.....	38,079,781	† 95,365,412	2.50
1919—Whole country.	106,871,294	* 249,179,275	2.33
326 cities.....	39,898,869	† 103,028,235	2.58
1920—Whole country.	105,683,108	* 303,482,351	2.87
370 cities.....	39,636,748	† 151,120,951	3.81

* Estimated from Records of the *Journal of Commerce*.

† Actual figures reported.

AMERICAN CITIES IN WHICH LOSS BY FIRE
EXCEEDED \$5.00 PER CAPITA

1920			
Sheboygan, Wis.	\$91.31	Columbus, O.	\$7.38
Galveston, Tex.	50.19	Meridian, Miss.	7.27
Malden, Mass.	38.39	Nashville, Tenn.	7.22
* Rock Island, Ill.	29.77	Concord, N. H.	7.18
Ann Arbor, Mich.	23.32	* Bloomington, Ill.	7.04
† Little Rock, Ark.	21.05	† Tulsa, Okla.	7.04
† Sacramento, Cal.	20.80	Haverhill, Mass.	7.03
* Sandusky, O.	20.67	Logansport, Ind.	6.82
* St. Joseph, Mo.	19.64	* Lima, O.	6.80
* Nashua, N. H.	17.80	* Chelsea, Mass.	6.58
Cumberland, Md.	13.63	* Fort Worth, Tex.	6.58
† Houston, Tex.	13.17	Springfield, Ill.	6.37
† Memphis, Tenn.	13.13	La Crosse, Wis.	6.21
Greenville, S. C.	12.24	McKeesport, Pa.	6.19
Lakewood, O.	12.22	St. Paul, Minn.	6.09
† Dubuque, Ia.	11.88	Galesburg, Ill.	6.05
† Fort Smith, Ark.	11.70	Hutchinson, Kan.	6.02
† Fort Dodge, Ia.	10.91	* Waterloo, Ia.	5.90
* Shamokin, Pa.	10.84	* Williamsport, Pa.	5.83
Columbus, Ga.	10.74	Warren, O.	5.81
Medford, Mass.	10.46	* Indianapolis, Ind.	5.68
† Fresno, Cal.	10.10	* Kansas City, Mo.	5.63
Jacksonville, Fla.	9.96	Lincoln, Neb.	5.60
Elgin, Ill.	9.53	* Oswego, N. Y.	5.60
Marion, Ind.	9.37	Macon, Ga.	5.59
Muskegon, Mich.	9.26	Baltimore, Md.	5.56
Belleville, Ill.	9.20	St. Louis, Mo.	5.51
Charleston, W. Va.	9.18	Appleton, Wis.	5.38
Wilkesburg, Pa.	9.06	Oshkosh, Wis.	5.32
Lafayette, Ind.	8.71	Salem, Mass.	5.25
* Dallas, Tex.	8.44	East Liverpool, O.	5.20
* Great Falls, Mont.	8.26	Montgomery, Ala.	5.19
Kokomo, Ind.	8.25	Jackson, Miss.	5.17
Petersburg, Va.	8.14	Newport, R. I.	5.17
† Des Moines, Ia.	7.94	Wichita Falls, Tex.	5.17
Terre Haute, Ind.	7.81	Fargo, N. D.	5.17
† Norfolk, Va.	7.70	Garfield, N. J.	5.14
Atlanta, Ga.	7.68	Beverly, Mass.	5.11
Lansing, Mich.	7.63	Pontiac, Mich.	5.08
New Orleans, La.	7.51	Bay City, Mich.	5.02

* These cities in this class in two of the five years, 1915-20.

† In this class three of the five years.

‡ In this class four of the five years.

§ In this class five years.

BOSTON HIGH PRESSURE FIRE SERVICE. During the year the High Pressure Fire Service protecting a portion of the business section of Boston was completed and on December 11, in the presence of the engineers of the National Board and local fire underwriters President Davenport and other officials of the Boston board, as well as the Mayor and fire chiefs from all parts of the State, a final test was made before the official inspection board. The tests took place on Tremont street and covered over a section of Boston Common over which water was discharged from water towers, turret, and other nozzles in the required volume. It was found that sufficient pressure could be secured and maintained to extinguish any kind of a fire which might start. The tests were highly satisfactory in all respects from every angle.

NEW FIRE BOAT FOR NEW YORK HARBOR. Late in the year the powerful fleet of the New York Fire Department fire boats was strengthened by the new fire boat *John Purroy Mitchel*, which was put into commission after a severe test in which its great pumping capacity was demonstrated.

FISHER, SYDNEY ARTHUR. Canadian cabinet minister, died April 9. He was born at Montreal, Can., June 12, 1850; and educated at McGill College, Montreal, and at Trinity College, Cambridge, Eng. He was elected to the Canadian parliament in 1882 and reelected several times, but defeated in 1911. He was minister of agriculture from 1896 to 1911.

FISHERIES. See ALASKA; ZOOLOGY.

FISHERIES IN THE UNITED STATES. The fish-cultural operations in 1921 were conducted in 33 States, Alaska, and the District of Columbia, and the output reached every State and Territory. The number of fingerlings handled was 226,589,545, fry aggregated 3,626,262,730, and the fertilized eggs assigned to State hatcheries or planted on the natural spawning grounds of the respective species numbered 1,109,637,130. The following table gives the total of eggs, fry, and fingerlings of each species:

SUMMARY, BY SPECIES, OF THE OUTPUT OF FISH
AND FISH EGGS DURING THE FISCAL YEAR 1921

Species	Total
Catfish.....	35,257,070
Carp.....	109,961,580
Buffalofish.....	109,952,835

STATISTICS OF FIRES IN AMERICAN CITIES, 1920, FROM REPORT OF THE COMMITTEE ON STATISTICS
AND ORIGIN OF FIRES, NATIONAL BOARD OF FIRE UNDERWRITERS, MAY 26, 1921

	Area sq. miles	Population	No. of alarms	No. of fires	Confined to building in place of origin	Total loss	No. of fires per 1000 population	Loss per capita
New York.....	314.75	5,620,048	16,615	14,638	14,371	\$18,806,908	2.60	\$3.35
Chicago.....	199.37	2,950,000	20,951	13,922	13,671	6,948,671	4.72	2.35
Philadelphia.....	129.75	1,824,000	5,798	4,889	4,826	8,794,411	2.68	4.82
Detroit.....	79.76	994,000	5,161	4,340	.....	3,683,133	4.37	3.71
Cleveland.....	59	797,000	4,309	3,254	.....	3,222,281	4.08	4.04
St. Louis.....	61.37	773,000	4,863	3,844	3,617	4,261,554	40.98	5.51
Boston.....	47.81	750,000	4,688	4,208	4,134	3,139,566	5.61	4.19
Baltimore.....	83	735,000	2,989	2,880	2,854	4,078,072	3.92	5.56
Los Angeles.....	365.37	577,000	3,334	3,035	2,939	1,468,792	5.24	2.55
San Francisco.....	38.87	509,000	4,428	3,423	3,392	.....	6.71	.....
Buffalo *.....	42	507,000	1,971	1,671	.....	2,311,823	3.29	4.56
Milwaukee.....	25.87	462,000	2,634	2,011	1,999	850,585	4.35	1.91
Washington, D. C.....	69	438,000	1,684	1,400	1,400	895,794	3.20	2.04
Newark, N. J.....	23.5	415,000	2,050	1,687	.....	1,266,880	4.06	3.05
Cincinnati.....	72	402,000	1,866	1,617	.....	1,056,730	4.02	2.63
New Orleans.....	196.25	388,000	1,156	1,156	1,103	2,915,295	2.98	7.51
Seattle.....	57.92	316,000	2,387	2,107	2,079	1,397,358	6.70	4.42

* Year ending June 30.

Species	Total
Shad.....	32,792,275
Alewife.....	43,815,000
Whitefish.....	420,450,000
Cisco.....	276,310,000
Silver salmon.....	7,086,150
Chinook salmon.....	39,560,765
Sockeye salmon.....	69,563,000
Chum salmon.....	26,438,400
Steelhead salmon.....	3,480,725
Atlantic salmon.....	1,387,280
Landlocked salmon.....	907,365
Rainbow trout.....	6,839,565
Blackspotted trout.....	5,719,400
Loch Leven trout.....	64,000
Lake trout.....	19,595,800
Brook trout.....	12,058,845
Grayling.....	1,400,000
Smelt.....	7,600,000
Pike and pickerel.....	540,510
Fresh-water drum.....	34,080
Crappie.....	37,303,900
Large mouth black bass.....	1,806,955
Small mouth black bass.....	358,290
Rock bass.....	108,305
Warmouth bass.....	100
Sunfish.....	30,371,475
Pike perch.....	353,968,515
Yellow perch.....	194,535,885
White bass.....	27,170
Striped bass.....	20,184,000
Cod.....	384,141,000
Pollock.....	455,066,000
Haddock.....	460,820,000
Winter flounder.....	1,768,660,000
Pole flounder.....	19,410,000
Miscellaneous fishes.....	4,935,165
Total.....	4,962,489,405

As compared with 1920, there was a general increase in production of nearly 200,000,000. Species handled in larger numbers were whitefish, cisco, alewife, chum salmon, blackspotted trout, brook trout, carp, pike perch, yellow perch, striped bass, and haddock, while the output of catfish, buffalo fish, shad, various Pacific salmon, lake trout, cod, and pollock was less.

The New England fishing fleet at the ports of Boston, Gloucester, and Portland during the calendar year 1920 numbered 471 sail, steam, and gasoline-screw vessels, including 41 American and 3 Canadian steam trawlers. These vessels landed at Boston 3342 trips, aggregating 118,558,902 pounds of fish, valued at \$6,136,569; at Gloucester 2381 trips, aggregating 46,740,296 pounds, valued at \$1,460,336; and at Portland 1883 trips, aggregating 12,981,503 pounds, valued at \$630,108. The totals for the three ports were 7606 trips and 178,280,701 pounds of fresh and salted fish, having a value to the fishermen of \$8,227,013. Compared with the previous year, there was a decrease of 663 trips, or 8.01 per cent, in the total number landed at Boston, Gloucester, and Portland, and of 18,200,569 pounds, or 9.26 per cent, in the quantity, with an increase of \$678,630, or 8.99 per cent, in the value of the products landed. The only important species showing an increase in both quantity and value were halibut, mackerel, and swordfish. The catch of halibut increased 1,674,669 pounds, or 79.19 per cent, and \$354,630, or 91.59 per cent; the mackerel catch increased 1,580,525 pounds, or 27.66 per cent, and \$215,852, or 39.44 per cent; and the catch of swordfish increased 1,648,942 pounds, or 186.80 per cent, and \$281,834, or 132.71 per cent.

The fishing fleet at Seattle, Wash., during the year 1920 brought in 822 fares, consisting of 14,355,450 pounds of fish, having a value to the fishermen of \$1,992,759, from the fishing grounds

along the coast from Oregon to Alaska. The largest quantities were taken from Flattery Banks, off the west coast of Vancouver Island, and in Hecate Strait. The products included 12,683,450 pounds of halibut, valued at \$1,913,849; 950,200 pounds of sablefish, valued at \$49,963; 513,035 pounds of "lingcod," valued at \$21,153; and 208,765 pounds of rockfishes, valued at \$7794. Compared with the previous year, there was an increase of 152 trips landed and an increase of 704,430 pounds, or 5.16 per cent, in the quantity, and of \$462,475, or 30.22 per cent, in the value of the products. The yield of halibut increased 1,572,730 pounds, or 14.15 per cent, and \$491,330, or 34.53 per cent, but there was a decrease in the catch of other species.

The fishery products taken in Puget Sound and landed at Seattle by collecting vessels during the year aggregated 9,813,966 pounds, valued at \$881,066. This quantity included 7,911,820 pounds of salmon, valued at \$765,145, and the remainder consisted of herring, steelhead trout, smelt, rockfishes, flounders, crabs, and other species. Compared with the previous year, there was a net decrease in the products landed by collecting vessels of 1,995,484 pounds, or 16.89 per cent and \$102,753, or 10.44 per cent, which decline was due to a large falling off in the catch of salmon. The decrease in salmon was, however, offset to some extent by a considerable increase in various less important species.

The cooperation of the Bureau of Fisheries having again been sought by the United States Public Health Service in the anti-malaria campaign in southern States, investigations were continued to gain additional information as to the conditions of the most effective use of fish for destruction of mosquitoes both in southern waters, where the prevention of malaria is a primary object, and in northern waters, where mosquitoes have a recognized deleterious effect upon the efficiency of labor and upon property values. The fish-cultural service was called on to supply lots of the mosquito-eating fish *Gambusia* for consignment to foreign countries. The fish were collected at several southern stations and were desired because of the success that has attended their employment in this country in eradicating malarial mosquitoes. In response to requests from the League of Red Cross Societies, with headquarters in Geneva, Switzerland, shipments of these little minnows were made to Italy and Spain, and pursuant to a request coming through the usual diplomatic channels, a consignment was furnished for the government of Argentina. A lot supplied to the international health board was destined for Porto Rico. All these fish were intended to be used in antimalarial work.

Under the general direction of the fisheries biological station at Fairport, Iowa, extensive work was done, in the propagation of pearly mussels native to the Mississippi river and tributaries. During the fiscal year 1921, 169,740,050 glochidia, or larval mussels, in a condition of parasitism on fishes, were liberated in public waters, as compared with 183,021,720 in the previous year. The fish hosts used for inoculation with glochidia were salvaged from overflowed waters, chiefly in the vicinity of Fairport, Iowa, and New Boston, Ill. The number of fishes rescued was 976,550, of which 40,020 were adults, and the number infected with the glochidia of

appropriate mussels before being liberated was 50,268. Two species of commercial mussels were handled in this work, the Lake Pepin mucket (*Lampsilis luteola*) and the river mucket (*Lampsilis ligamentina*), the last being propagated in only limited numbers. The infected fish were liberated in Lake Pokegama, Minn., and in the Mississippi river at the following places; Lake Pepin, Minn. and Wis.; Minneiska, Minn.; Lynxville, Wis.; Fairport, Iowa; New Boston, Ill.; and Lake Keokuk, Iowa and Ill. Operations were not conducted in Arkansas as in previous years, owing to the impracticability of obtaining the necessary labor and equipment.

FISK UNIVERSITY. A co-educational institution for negroes at Nashville, Tenn.; founded in 1866. In the fall of 1921 the total enrollment was 472 and in the summer session 200. The faculty numbered 63. The library contained 12,000 volumes. The endowment was \$250,498 and the income \$136,867. President, Dr. Fayette Avery McKenzie, Ph.D.

FISKE, AMOS KIDDER. Author, died, September 21. He was born at Whitefield, N. H., May 12, 1848, graduated at Harvard in 1866, and was admitted to the bar in New York City in 1868. He was associated with George Ticknor Curtis in preparing the Life of Daniel Webster and worked on the staffs of the *American Encyclopedia* and New York newspapers down to 1902; became an associate editor of the *New York Journal of Commerce* and after January, 1903, of the *Commercial Bulletin*. He wrote *Midnight Talks at the Club* (1890); *Beyond the Bourn* (1891); *The Jewish Scriptures* (1896); *The Myths of Israel* (1897); *The Story of the Philippines* (1898); *The West Indies* (Story of Nations series, 1899); *The Modern Bank* (1904); *The Great Epic of Israel* (1911); *Honest Business* (1914).

FITZGERALD, A. L. See NECROLOGY.

FIUME. An independent state, established under the treaty of Rapallo between Italy and Jugo-Slavia, signed Nov. 12, 1920 (see articles on ITALY and WAR OF THE NATIONS in this and preceding YEAR BOOKS). Area, 8 square miles; population, 49,806. On October 9 the president of the new state, Riccardo Zanella, made public the names of his ministers, which were as follows: Interior, M. Blasich; Justice, M. Jechel; Finance, D. Mohovich; Education, V. Soelch; Public Works, L. Petteani; Welfare, E. Laschiach. The president was to take the portfolio of Foreign Affairs, Commerce, and Communications. In the programme announced by the president, all thought of revenge against political enemies was renounced and citizens of the new state living abroad were placed under the protection of the representatives of the king of Italy. The programme was voted by the assembly by a vote of 50 against 10, the opposition being in favor of direct annexation with Italy.

FLAX. According to data published by the International Institute of Agriculture, Rome, the flaxseed production of the world in 1921 was still below normal. The yields reported by a number of countries were approximately as follows: Belgium, 324,000 bu., Bulgaria, 17,600 bu., Italy, 393,700 bu., Spain, 45,900 bu., Netherlands, 155,300 bu., Tunis, 59,000 bu., British India, 10,760,000 bu., Japan, 633,700 bu., and Canada, 4,365,000 bu.

Estimates published by the Department of

Agriculture place the production of the United States at 8,112,000 bu. and the area at 1,165,000 acres, making the average yield per acre 7 bu. as compared with 6.1 bu. and 4.8 bu. per acre for the years 1920 and 1919 respectively. The production in 1920 was greater by 2,662,000 bu. and the area by 592,000 acres. The average farm value on Dec. 1, 1921, was 144.6 cts. per bushel as compared with 176.7 cts. and 438.3 cts. in 1920 and 1919 respectively. On this basis the total value of the 1921 crop was \$11,732,000 or \$7,307,000 under the total value of the 1920 crop and \$20,070,000 under the value of the 1919 crop. Before the European War the world's fibre crop was about 1,156,000,000 lbs., of which nearly 940,000,000 lbs. were produced by Russia. The Russian acreage of fibre flax in 1920 was reported as only about 10 per cent of the prewar area. In prewar times Russia consumed about 250,000,000 lbs. of fibre and exported 650,000,000 lbs. In 1920 the crop was only 90,000,000 lbs. or not even half of the domestic requirement.

The French government encouraged flax culture in Morocco to offset the Russian failure of supply, and in this regard to make French spinners independent of foreign countries. Russia formerly supplied about 80 per cent of the fibre flax used in making the world's linens. The normal prewar consumption of flax fibre in the United States was about 10,000 tons annually, most of which was imported. The Department of Agriculture continued work during the year to promote domestic fiber production but owing to the relatively low price the acreage in 1921 was only 3000 acres as compared with 6000 acres in 1920 and with 60,000 acres to produce the supply required.

FLETCHER, SIR LAZARUS. British physicist, died in London, January 9. He was born at Salford, Eng., March 3, 1850; graduated at Oxford with high honors in mathematics and mechanics; and was a Fellow of University College, Oxford, from 1877 to 1880. He was keeper of minerals in the British Museum from 1880 to 1909, and after that director of the natural history department of the museum until 1919. Meanwhile he was an officer or president of many important associations within his field of research both in England and in other countries. He wrote in addition to numerous contributions to periodicals and books of reference: *Introductions to the Study of Meteorites* (1881); *Introductions to the Study of Minerals* (1884); *Introductions to the Study of Rock* (1895); *The Optical Indicatrix* (1892).

FLOOD, HENRY DELAWARE. Congressman, died at Washington, D. C., December 8. In his later years he was particularly known as the author of the resolution declaring war with Germany. He was born in Appomattox County, Va., Sept. 2, 1865, educated at Washington and Lee University, studied law and was admitted to the bar in 1886. He was elected to the Virginia House of Delegates in 1887 and to the State senate in 1891, 1895, 1899. In 1896 he was elected to Congress on the democratic ticket and was a member of that body from 1901 to 1921. He was chairman of the committee on foreign affairs.

FLOODS AND FLOOD PROTECTION. The year 1921 saw the virtual completion in the United States of two important projects designed

to protect communities from the dangers of sudden floods due to streams being swollen by rain and overflowing their banks. Of those the Mill Creek improvement which had been put under way at Erie, Pa., after the disastrous flood of 1915 was entirely finished, while the larger and well-designed district project developed for the Miami Valley in Southwestern Ohio was nearing completion and stood as an important engineering work. In contrast to these projects already accomplished mention must be made of serious floods at Pueblo, Colo., San Antonio, Texas, and Phoenix, Ariz. At these cities protection had previously been discussed in view of threatening circumstances, but protective works had not been started, and the result of the year's experience was to put the various designs and projects under way in earnest.

MIAMI CONSERVANCY DISTRICT. In 1921 this great project was nearing completion and in particular work was being actively prosecuted on finishing the Taylorsville dam, the largest of the five detaining dams of the Miami Conservancy District. It was located a few miles above Dayton, so as to control the main course of the Miami river and was 3000 ft. long, with a maximum height of 78 ft. It contained about 1,200,000 cu. yd. of earth embankment. This dam had a special discharge or outlet structure, comprising a series of four 15 by 20 ft. arched openings through a concrete spillway weir. This was the largest of the concrete structures on any of the district work, and contained about 50,000 cu. yd. of concrete. This outlet in case of extreme flood would discharge 50,000 sec.-ft., while in a flood as large as that of 1913 the basin formed by the Taylorsville dam would impound 152,000 acre-ft. of water. At the end of 1921 at the Taylorsville dam the embankment and concrete work had been completed, but various finishing jobs, it was estimated, would last into the spring of 1922. To control Laramie Creek, one of the headwater streams further north, the Lockington dam was completed also during the year. Two important tributaries entering at Dayton, Stillwater river, and Mad river, were controlled by detaining dams at Englewood and at Huffman respectively, which at the end of the year were almost completed. Finally, ten miles south of Dayton the inflowing Twin Creek was controlled by the Germantown dam, which was completed in 1920 and was in service.

MILL CREEK FLOOD PROTECTION. The city of Erie, Pa., on Nov. 23, 1921, formally announced the completion of its Mill Creek flood control works, built to prevent such a disaster as that experienced in 1915 when the stream, passing through the built-up section of the city for more than a mile, overflowed its banks and caused the death, by drowning, of forty people and a property loss estimated at \$2,000,000. By the new improvement the stream was entirely inclosed in a 22x18-ft. concrete conduit on which were located graded and paved streets, while on ground that was formerly the open-stream channel buildings were erected. In addition to securing protection considerable land in the heart of the city was thus reclaimed for building purposes.

PUEBLO FLOOD. The valley cities of central and southern Colorado east of the continental divide suffered severely from devastating floods between June 4 and June 6, 1921. The most

serious loss of life and heaviest property damage was in Pueblo, where the waters of the Arkansas river and its tributary, Fountain Creek, rose 15 ft. above the highest previous stage and flooded some 350 city blocks, destroying buildings and causing many deaths. A total damage of \$20,000,000 to \$25,000,000, was estimated as due to the floods, of which nearly \$15,000,000 represented the loss in the city of Pueblo.

The flood had its origin in a heavy long-continued rainstorm which began June 2, and which attaining a maximum on June 3 and 4 produced a swollen condition of the Arkansas and the South Platte, two rivers which drain the region east of the continental divide. The most intense rainfall affected the upper drainage area of the Arkansas, and Pueblo, its chief city, suffered to an extraordinary degree, while roads and bridges in this region were also seriously damaged. Denver and other cities in the northern region, however, suffered but little, but extensive damage was done to farms and to bridges and the highways in the South Platte area also, though here there was little loss of life.

The failure of the Schaefer dam, a 90 ft. high earth fill dam on Beaver Creek, a northern tributary of the Arkansas near Florence, intensified the flood conditions on the morning of June 5, when the rainfall was at its maximum.

In the city of Pueblo where the greatest damage was done by the flood and the rush of the current through the city, wooden houses were floated from their foundations and smashed against more resistant structures, with the effect of causing many of the more substantial buildings to collapse. At the height of the flood a fire that started in the lumber yards added to the danger, but it was brought under control largely with the aid of the continuing rain. In addition to the destruction of dwelling houses, those of frame generally being utterly destroyed, more than 50 large business buildings were damaged by water or fire. Substantial brick wall construction of 13-in. thickness succeeded in resisting the flood and a big concrete grain elevator, which for a day or two stood in a sea of mud and water, was found undamaged when the flood receded. Naturally the breakage of water mains and local blocking of the sewers added to the difficulties of existence in the flooded district, but gas and electric light service continued, in part at least, in residential districts above flood level.

Measures to prevent the occurrence of a similar disaster were set on foot and local interests sought the coöperation of the U. S. Reclamation Service in a plan to construct a storage reservoir for irrigation water 8 miles above the city of Pueblo. The Reclamation Service began an investigation of such a project, looking up a survey that was made several years previously.

SAN ANTONIO, TEXAS, FLOOD. The city of San Antonio suffered from the most extensive and destructive flood in its history during the night of September 9 and the early morning hours of Sept. 10, 1921. After 24 hours of almost continuous rain, a heavy storm broke in the evening of September 9, accompanied by heavy rain from 7 to 9 p. m. In the city itself during the twenty-four hours preceding the flood there was a total rainfall of approximately 8 in., while a few hours previous to the heaviest of this rain the valley of the Olmos Creek, which empties into the San

Antonio river at the city line, had experienced some 13½ in. of rain in even less time. About midnight the resulting torrent further increased by the heavy local rain swept down upon the centre of the city so that by 2 a. m. of September 10 a section six miles long and from one-third to one mile wide was under water. Water to a depth of from 3 to 10 feet covered practically the entire business district, while about two square miles of residence section also were inundated.

The total property loss was estimated at about \$10,000,000.

Like many other American cities San Antonio in 1921 had practically no protection against cloudbursts, and the lesson was sufficient to lead to measures for the construction of a detention reservoir above the city to regulate the flow of flood waters so that they could be confined to a definite channel, and the excess permitted to run off in subsequent hours or days. This dam was estimated to probably cost in the neighborhood of \$2,000,000.

PHOENIX, ARIZONA, FLOOD. A section of the western portion of Phoenix, Ariz., from two to ten blocks wide, on the night of August 21, was flooded by water originating in Cave Creek. No lives were lost and the principal damage was to the state capitol, where water stood about 2½ ft. deep on the first floor, though many private residences suffered severely, the property damage being estimated at \$300,000. Considerable damage also was done to cattle and crops of ranchers living to the north of the city.

Cave Creek, responsible for the flood, drains an area of 200 sq. mi., and from a point about 12 miles north of Phoenix flows through no defined channel. With average rains the waters spread over a delta and find their way through the Salt River Valley Water Users' Association canals to the Salt and Gila rivers, but not infrequently these canals have been broken through and with areas flooded when there were heavy rains.

After two days of unusually heavy rain, an unusually heavy runoff took place, which Cave Creek was unable to handle. The flood waters overflowed the Arizona Canal, which has a flood capacity of 800 sec.-ft., 8 miles from Phoenix and later overflowed the Grand Canal, parallel to and 5 mi. south of the Arizona Canal. This canal has a flood capacity of 600 sec.-ft. In the early evening the flood reached Phoenix, and reached its maximum there at 10 p. m., receding by the following morning.

As a result the city voted bonds for \$100,000, to be supplemented by amounts from the county of Maricopa, the State, the Salt River Valley Water Users' Association and other interests, to an aggregate of \$400,000 to institute protection against Cave Creek floods, but no definite announcement had been made of the engineering plans.

DECEMBER FLOODS. Late in December heavy rains in the State of California have caused the railroads considerable damage and inconveniences. San Diego, Calif., was completely isolated on December 25 for several days as it was necessary to suspend traffic on both the Atchison, Topeka, & Santa Fe and the San Diego & Arizona on December 25. A washout in the Santa Fe cost 1000 ft. of track and roadway near Sorrento, and there were small washouts at several other points, while the bridge over the San Diego river was

threatened. High water in the Ohio region caused the Cleveland, Cincinnati, Chicago & St. Louis, the Southern and the Baltimore & Ohio to abandon the Central Union station at Cincinnati temporarily and service could not be resumed, except for one or two local trains operated on a track above the water line, until December 28. The railroads at Cincinnati and at other points on the river experienced considerable inconvenience from the high water rather than actual damage.

CANADIAN FLOODS. During the week of October 23, heavy rains resulted in serious flood damage to the Canadian railroads in the vicinity of Vancouver, B. C., in the Cascade Mountains. At Coquitlan, B. C., 17 miles east of Vancouver, two 80-ft. spans of the Canadian Pacific bridge across the Coquitlan river were carried out, while the Coquitlan terminal, the freight terminal for Vancouver, was entirely under water. Slides and washouts in the Fraser river canyon held up transportation through the canyon, and damage was recorded at Yale Creek, where one pier of a bridge was carried out. At a point 17 miles east of North Bend a small lake in the mountain overflowed, flooding the tracks, and carrying out the fill for a distance of 200 ft. to a maximum depth of 110 ft., and making it necessary to detour traffic over the Great Northern, to Huntington, B. C. On the Kettle Valley line washouts and slides in Coquihalla Pass held up transportation on October 28; slides and washouts in the Fraser Valley held up operation on the Canadian National on October 29, with serious damage at Lytton, B. C. There was reported serious damage to the Pacific Great Eastern between Clinton, B. C., and Squamish. These various mishaps put sections of line out of operation for from two days to two weeks. See DAMS.

FLORIDA. POPULATION. According to the report of the census of 1920, there were 968,470 residents in the State, Jan. 1, 1920, as compared with 752,619 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	788,000	11,032,000	\$5,847,000
	1920	750,000	10,125,000	10,125,000
Oats.....	1921	41,000	533,000	346,000
	1920	41,000	697,000	418,000
Tobacco.....	1921	4,000	13,600,000	360,000
	1920	4,000	14,200,000	2,018,000
Hay.....	1921	118,000	185,000	1,640,000
	1920	121,000	181,000	1,575,000
Potatoes.....	1921	17,000	1,564,000	2,972,000
	1920	23,000	2,415,000	4,830,000
Sweet potatoes.....	1921	32,000	2,720,000	2,611,000
	1920	30,000	2,850,000	3,420,000
Cotton.....	1921	77,000	13,000	1,170,000
	1920	100,000	18,000	1,540,000
Peanuts.....	1921	80,000	154,000,000	1,728,000
	1920	90,000	156,250,000	3,375,000
Oranges.....	1921		8,200,000	14,350,000
	1920		8,100,000	17,820,000

¹ Pounds. ² Tons. ³ Bales. ⁴ Boxes.

DRAINAGE. The statistics in table on page 235 of the drainage of the State in 1920 were published by the United States Bureau of the Census:

The total works completed by drainage enterprises to Dec. 31, 1919, comprised 1990.8 miles of open ditches and 66.2 miles of levees; the additional lengths under construction were 694.0 miles of open ditches and 106.5 miles of levees.

DRAINAGE ON FARMS

Number of all farms in the state.....	54,005	100.0
Farms reporting land having drainage.....	4,597	8.5
Farms reporting land needing drainage.....	8,486	15.7
All land in farms.....	acres.. 8,046,691	100.0
Improved land in farms.....	acres.. 2,297,271	38.0
Farm land reported as provided with drainage.....	acres.. 147,940	2.4
Farm land reported as needing drainage.....	acres.. 687,021	11.4

DRAINAGE ENTERPRISES

Approximate land area of the state.....	acres.. 35,111,040	100.0
All land in operating drainage enterprises.....	acres.. 1,637,073	4.7
Improved land.....	acres.. 94,689	0.3
Timber and cut-over land.....	acres.. 542,648	1.5
Other unimproved land.....	acres.. 999,836	2.8
Capital invested in and required for completion of operating enterprises.....	\$26,762,497	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	\$13,846,807	51.7
Additional capital required to complete these enterprises.....	\$12,915,690	48.3

These figures do not include drains or levees installed by individual farm owners supplemental to the works of the enterprises, nor the works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. The cost of nine locks and dams completed in the state canals in the Everglades Drainage District, amounting to about \$278,000, and of two others under construction is included in the cost of the enterprises. The principal crops grown on the drained land in drainage enterprises were potatoes and other vegetables.

MANUFACTURES. The census of the manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the factory system. A comparative summary for the State for 1914 and 1919 follows:

levied, revenue therefrom to be used for building and maintenance of State Highways. This latter act was fought in the courts. Appropriation of \$250,000 made for enlarging and remodeling capitol building. Act to punish passing worthless checks. Constitutional amendment submitted, to be voted upon in the election in November, 1922, providing for a reapportionment of legislative representation, largely increasing the membership of both senate and house. Seven new counties created by carving from old counties.

JUDICIARY. Supreme Court, Chief Justice, Jefferson B. Browne; Associated Justices, James B. Whitfield; Thomas F. West, William H. Ellis; R. Fenwick Taylor.

OFFICERS. Governor, Cary A. Hardee; Secretary of State, H. Clay Crawford; Comptroller, Ernest Amos; Treasurer, John C. Luning; Attorney General, Rivers H. Buford; Superintendent of

	Census—		Per cent of increase ¹ 1914-1919
	1919	1914	
Number of establishments.....	2,581	2,518	2.5
Persons engaged in manufactures.....	79,986	63,204	26.6
Proprietors and firm members.....	2,616	2,682	-2.5
Salaried employees.....	5,955	4,914	21.2
Wage earners (average number).....	74,415	55,608	33.8
Primary horsepower.....	139,326	100,071	39.2
Capital.....	206,294,000	88,318,000	133.6
Services.....	78,417,000	30,112,000	160.4
Salaries.....	10,836,000	5,290,000	104.8
Wages.....	67,581,000	24,822,000	172.3
Materials.....	92,362,000	33,816,000	173.1
Value of products.....	213,675,000	81,112,000	163.4
Value added by manufacture (value of products less cost of materials).....	121,313,000	47,297,000	156.5

¹ A minus sign (—) denotes decrease.

The increase in Florida seem to be explained by the large increase shown in the shipbuilding industry. The value of products in this industry amounted to \$804,000 in 1914 and \$32,662,000 in 1919. Fertilizer plants, lumber, and timber, and turpentine also show considerable increases.

CHARITIES AND CORRECTIONS. The State institutions are: Institute for Deaf, Dumb, and Blind at St. Augustine; Hospital for the Insane at Chattahoochee; Industrial School for Boys at Marianna; Reform School for Delinquent Girls at Ocala; Prison Farm at Raiford; Home for Feeble-minded and Epileptics at Gainesville.

LEGISLATION. The session of 1921 enacted a law putting the pay of county officers on a graduated fee system, greatly reducing their remuneration. License tax on automobiles changed to a weight basis instead of on horsepower as heretofore. Tax of one cent a gallon on gasoline

Public Instruction, William N. Sheats; Commissioner of Agriculture, William A. McRae; Auditor (office abolished and duties transferred to office of Comptroller).

FLORIDA, UNIVERSITY OF. A State institution of the higher education at Gainesville, Fla., founded in 1905. The enrollment for the fall of 1921 was 922 and for the summer session, 780. The faculty numbered 54. Resources for the year were given at \$224,354. The library contained 40,000 volumes. Special emphasis is laid on affording facilities for the study of agricultural, scientific, legal, educational, business, and social conditions of the State. President, A. A. Murphree, LL.D.

FLOTILLA LEADERS. See BATTLESHIPS AND OTHER WAR VESSELS.

FLOUR. See AGRICULTURE.

FLUORSPAR. The total quantity of fluor spar

reported as shipped from domestic mines in 1920, according to figures compiled by the United States Geological Survey, was 186,778 short tons, valued at \$4,718,547, which shows an increase of 35 per cent in quantity and 34 per cent in value as compared with the figures for 1919. The general average price per ton f. o. b. mines or shipping points for all grades of spar in 1920 was \$25.26; in 1919 it was \$25.49. The total quantity of merchantable spar recovered in 1920 was 201,372 short tons, an increase of 31 per cent over 1919. Stocks of spar at mines or shipping points, mainly in Illinois and Kentucky, amounted to 41,784 short tons, an increase of 31 per cent over 1919.

FLYING RECORDS. See **AERONAUTICS**.

FOCH, FERDINAND. Marshal of France, delegate to the Disarmament Conference at Washington, arrived in New York City, October 28. The part he played in the late war has been sufficiently described in preceding **YEAR BOOKS** and the present article is confined to a sketch of his life and a brief mention of his military principles. He was born, Aug. 4, 1851, at Tarbes, France, the son of the secretary-general of the prefecture; studied at the lycée there and at Rodez. In 1867 he entered the college of Saint Michel directed by the Jesuits, and afterwards the college of Saint Clément at Metz. At an early age he showed an aptitude for mathematics although he was also an enthusiastic student of history; and he made up his mind at an early age to become a soldier. He entered the Polytechnic School in 1871 and studied afterwards at the Cavalry School at Saumur. In 1884 he was received at the war school; in 1891 he became chief of squadron and in 1896 adjunct-professor of strategy and general tactics at the war school, rising to the rank of lieutenant-colonel two years later. He was an energetic and successful teacher and felt much regret at being obliged to leave this work on account of changes in administration of the war school in 1901. Placed in command of the 35th Regiment at Vannes in 1903 he performed his duties with marked fidelity and in 1907 was appointed brigadier-general. Soon afterwards he was called to the direction of the war school. This work he took up with great enthusiasm, believing that in respect to the higher military studies the French were behind the Germans and resolving to improve instruction to the utmost. In 1911 he was placed in command of the 13th division at Chaumont and shortly afterwards of the 20th division at Nancy. He was still at this post when the war broke out.

He had made a reputation for himself as a military scholar and teacher, having published two books that were regarded as standard works, namely, *The Principles of War*, and *The Conduct of War*. These two volumes were a condensation of his lectures at the war school. One of the main features of his military teachings was that any theory of war was false if it took account only of material factors. It must take account in full measure of the moral and intellectual qualities of men, for war was not an exact science but a drama. Inasmuch as knowledge was essential to success, hard study was required of all officers. Only a man of genius, who of course was an exception, could trust to inspiration to carry him through difficulties. He reduced the art of war to these three principles: Preparation;

formation of mass; the possibility of multiplying the effect of mass by impulsion. In modern fighting, order and method were employed in the direction of masses by the application of the principle of economy of forces, combining the mass in such a manner as to bring the requisite number to the chosen point of attack. To accomplish this, it was necessary to have liberty of action and this must be obtained by intellectual discipline. In war-time aside from the commander-in-chief, there were only the subordinate officers, each one of whom must think first of all of obedience, but obedience in view of unnumberable unforeseen circumstances was a matter of great difficulty. To overcome this difficulty there was need of an exact discipline of spirit and intelligence. The successful general was first of all a man of character and secondly a man capable of understanding problems and making the necessary combinations in order to carry out instructions. Discipline for a general does not mean that he should execute his orders merely in the measure that seems proper or even possible. It means that he must actually participate in the thought and the point of view of the superior officer, who has given him the order to execute. These and his many other principles were all illustrated by appeals to the history of war, his writings and lectures being especially rich in concrete illustrations from the campaigns of Napoleon and other great generals of the past. He had unflinching enthusiasm for teaching and devoted himself to the work with extraordinary energy. The influence that he exerted on his pupils was remarkable.

After the war his influence was exerted in favor of extreme watchfulness against Germany, and he believed that the safety of France depended on her retaining a firm hold of the Rhine. He traveled widely in the United States visiting the principal cities, and was everywhere received with great enthusiasm.

FOERSTER, WILHELM. See **NECROLOGY**.

FOG SIGNALS. See **LIGHTHOUSES**.

FOLKLORE. See **ANTHROPOLOGY**.

FONTAINEBLEAU CONSERVATORY. See **MUSIC, General News**.

FOOD. See articles on agricultural subjects and **FOOD AND NUTRITION**.

FOOD AND NUTRITION. On the whole, food conditions during the year tended to become more normal. In the United States the downward trend in wholesale prices noted in the latter part of 1920 continued during the first half of 1921, followed by comparatively small reactions upward through the fall, while at the end of the year prices were again slowly receding. On Dec. 23, 1921, *Bradstreet's* reported as its weekly food index figure, based on wholesale prices of 31 standard food articles, \$2.95, as compared with \$3.51 for the corresponding week of the previous year. This was approximately comparable with the price level of 1916 and was only about 20 per cent higher than that of 1914. During 1921 wheat flour declined from \$8.50 to \$5.75 per barrel; dressed beef and pork from 18 and 16.5 cents per pound, respectively, to 12.5 and 12 cents; butter from 57.5 to 47 cents; lard from 17.25 to 9.4 cents; sugar from 8.75 to 5.2 cents; and salt from 1.13 to 0.93 cents per pound. Other commodities showed similar reductions, except milk, mackerel, coffee, tea, apples, and



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FERDINAND FOCH

Marshal of France and Generalissimo of the Allied Armies, who visited the
United States in 1921

...

lemons, all of which had advanced, and codfish and peanuts, which were unchanged.

As regards retail prices, the United States Department of Labor announced that estimates on 43 food articles in 51 cities showed an average decrease for the year ended Nov. 15, 1921, of 22 per cent. However, as compared with Nov. 15, 1913, there was still an increase of 45 per cent.

The continued failure of retail prices to decrease as radically as wholesale prices on most commodities was a subject of much complaint from the ultimate consumer, who beheld tremendous shrinkages in the farm value of foodstuffs to points far below the cost of production with comparatively little relief to himself; For instance, he read reports of the use of corn as fuel in the Middle West, although the United States Department of Agriculture announced that its relative heating value per bushel, as compared with a fair grade of western soft coal at \$10 per ton, was only about 20 cents, and he reflected that this was the prevailing retail price for two half-pound packages of corn breakfast food. On Dec. 23, 1921, the beginning of a Federal investigation of retail prices for food, as well as fuel, clothing, and other commodities, was announced by the Attorney-General, who declared that these prices were too high and that in some instances the profits of retailers were "unconscionable."

The food situation was further complicated by numerous strikes among employees handling food products. These included the extensive labor disturbances in the Chicago packing houses and elsewhere, and the strikes of milk drivers in New York City and Cleveland. A congressional investigation of the milk supply of the District of Columbia was in progress at the close of the year.

Food conditions abroad still continued abnormal, though with wide variations between various countries. In Europe, an unusually severe drought caused a serious shortage in the 1921 crop in many regions. In Great Britain prices materially increased with the reduced supplies on practically all foodstuffs, but especially fruits and vegetables, potatoes doubling in cost. The German potato crop was only 60 per cent of that of 1913. Prices rose in Belgium to a point on November 14, 394 per cent above that in 1914, and in the Netherlands in July to about 177 per cent above that of 1913. In Spain prices became higher than for five years, and price regulation was again resorted to for cattle, fresh meats, fish, fruits, wheat, and flour. There were also material advances in Italy. On the other hand, Poland and Rumania reported good crops and some exports, and in Denmark the cost of living in October was 202 per cent above the 1913 level as compared with 403 per cent in October, 1920. Belgium was able to relinquish Government control over sugar, November 1.

In Austria the cost of living was officially estimated in June as 11,000 per cent above the 1914 figures, and an increase of 578 per cent was noted from January to November alone. Furthermore, conditions were expected to be even less favorable after Jan. 1, 1922, on which date the Republic discontinued its subsidies to producers. Large purchases had been made by the Government in an attempt to assure a sufficient food supply, but it was predicted that bread would be increased in cost to the consumer from 10 to 15

times, as the previous charge had included little above the expenses of baking.

In Russia the drought and general unsettled state of affairs caused a shortage in grain production which resulted in a virtual agricultural breakdown, bringing famine conditions to at least 15,000,000 people in the region of the Volga and a food shortage to an equal number surrounding them. Relief by the United States was urgently recommended by President Harding in his message of December 6, and a measure signed by him on December 22 appropriated \$20,000,000 from the funds of the United States Grain Corporation for this purpose. This amount was to be expended for corn and preserved milk for immediate relief and for seed grain for spring planting.

Heavy exports of foodstuffs from the United States to Europe were made during the fall, particularly of wheat and corn. It was reported that the latter cereal, for which there had been little European demand before the war, was now being imported in amounts fully 10 times as large as formerly.

Much of the popular interest in nutrition research stimulated by the war was continued during the year. There was particular interest in the discoveries being made as to the so-called "accessory substances" or "vitamins" in foods and their relation to nutritional diseases, and these questions were being more generally studied than any others. A review by Sherman of the status of this subject cited no fewer than 230 scientific contributions since the beginning of these inquiries in 1906. At least three vitamins, known for convenience as A, B, and C, are now believed to exist in foods, differing considerably in their properties but all followed by physiological disturbances unless present in sufficient quantities in the diet. Numerous proprietary preparations purporting to supply these vitamins were placed on the market during the year, and there was considerable exploitation of yeast and other materials, but such data as were available still indicated that with a well-balanced mixed diet, especially one in which milk, vegetables, and fruit were abundant, the body needs would be amply provided for.

A study of diets in farm families by the United States Department of Agriculture showed, contrary to the opinion sometimes expressed, a larger total consumption of food and a freer use of animal foods, chiefly milk, and of vegetables and fruits than in non-farm families. It was concluded that "there can be no doubt that the food eaten on the average American farm is abundant, wholesome, and varied enough for health and enjoyment."

Digestion experiments reported by the same department with artificially hardened cottonseed, peanut, and corn oils, now being extensively used as lard substitutes, showed no digestive disturbances, and indicated that these materials are as well utilized as natural fats of corresponding melting points. Similar experiments with kid, rabbit, horse, and seal meat showed essentially the same digestibility as other better known meats. Studies by the Benedicts of the energy content of "extra foods" indicated that sandwiches supply considerable energy, though they are not economical sources thereof at prevailing prices.

In a series of studies on the influence of various factors on digestion, Hawk et al. obtained results indicating that attractive appearance and palatability of food might hasten the time of digestion, but not the ultimate utilization of the protein, while anxiety and mental strain delayed gastric digestion. The consumption of large quantities of tea or coffee without sugar did not appreciably retard digestion, but cocoa caused distinct delay and coffee with sugar less marked delay. Puddings were digested more rapidly than cake and pies, and pies more readily than cake. Sugars and candy delayed digestion, and the authors suggest candy eating after rather than before meals and the use of hard rather than cream candies for children.

Processes were worked out at the California Experiment Station and elsewhere for sterilizing ripe olives at temperatures sufficiently high to minimize risk of poisoning from *Bacillus botulinus*. Other studies of botulism indicated anew that the surest means of preventing this disease is the rigid avoidance as food or even the tasting of any material which either in appearance or odor shows the slightest sign of spoilage.

An important development was the establishment of the American Food Research Institute at Leland Stanford University. A grant of \$700,000 was made by the Carnegie Corporation of New York for the support of this institute during the next ten years. An intensive study of problems connected with the production, distribution, and consumption of food, in coöperation with existing food research agencies, is being planned.

BOOKS OF THE YEAR.—Some of the more important treatises include the following: *Analyses and Energy Values of Foods*, R. H. A. Plimmer, London; *The Microbiology and Microanalyses of Foods*, A. Schneider, Philadelphia; *The Vitamin Manual*, W. H. Eddy, Baltimore; *Red Cross Course in Food Selection*, Washington, D. C.; *Food and Cookery and the Care of the House*, M. L. Matthews, Boston, and *School and Home Cooking*, C. C. Greer, Boston.

FOOD POISONING. During the year cases of botulism continued to be reported and the uselessness of the term "ptomaine poisoning" was conceded. Drs. Rosenau and Weiss have recently reported in the *Journal of the American Medical Association* for Dec. 17, 1921, a form of food poisoning but little known in America. The cause is a microorganism known as Gaertner's bacillus, otherwise intestinal bacillus (*B. enteritidis*), which causes an acute infectious fever. On one occasion in Washington twenty-five students sat down to a meal and 18 were made ill. The offending dish was shown to have been the bread-pudding of the dessert, but the question of how the food became contaminated has not yet been answered. The dish, as is usually the case now-a-days, was apparently quite wholesome in every respect. The authors endeavor once more to warn the public that in most cases contaminated food presents nothing to offend the sight, smell, or taste. Gaertner's bacillus cannot be detected in water or food, in contrast with the bacterial causes of typhoid fever and cholera: fortunately the infection which it sets up is relatively short and mild but nevertheless a true enteric infection like typhoid and paratyphoid fevers, dysentery, and cholera. This condition differs radically from botulism, for here

the food is slightly decomposed from the secondary action of the germ and has a slightly cheesy or rancid-butter smell. A small fragment of such tainted food is enough to cause a fatal illness. Householders should avoid throwing infected or suspicious food in dumping places for in this manner loose hogs and other animals can become contaminated and continue to spread the bacteria by means of excrement and in this way poultry may contract the disease.

FOOT AND MOUTH DISEASE. See VETERINARY MEDICINE.

FOOTBALL. Football added considerably to its prestige in 1921, when the various college contests throughout the United States attracted record-breaking throngs of spectators. To the introduction of the forward pass the ever-increasing popularity of the game is undoubtedly due. Not only does the resultant "open play" enhance the enjoyment of the spectator, but it also has made it possible for the elevens from smaller institutions to meet the "big college" teams on more even terms. There was some agitation for the restriction of the "pass" at the close of the 1921 season, but the rule-makers appeared to be unwilling to make any changes at the present time. Of interest in connection with the growing enthusiasm for the game was the large number of "inter-sectional" contests held by the American colleges in 1921.

The preëminent teams of the year—Penn State, Lafayette, Cornell, and Washington and Jefferson in the East—Iowa University and Notre Dame in the Middle West—Centre College in the South, and the University of California on the Pacific coast. The triangular battle for supremacy between Harvard, Yale, and Princeton had an unusual outcome, Princeton winning from Harvard only to be beaten by Yale, which, in turn, was forced to bow to Harvard.

A summary of the games played by the leading college elevens follows:

Penn State 53, Lebanon Valley 0; Penn State 20, Franklin and Marshall 0; Penn State 7, Gettysburg 0; Penn State 35, North Carolina State 0; Penn State 28, Lehigh 7; Penn State 21, Harvard 21; Penn State 28, Georgia Institute of Technology 7; Penn State 28, Carnegie Institute of Technology 7; Penn State 13, U. S. Naval Academy 7; Penn State 0, Pittsburg 0.

Lafayette 48, Muhlenberg 0; Lafayette 6, Pittsburg 0; Lafayette 27, Dickinson 0; Lafayette 20, Bucknell 7; Lafayette 28, Fordham 7; Lafayette 35, Rutgers 0; Lafayette 38, Pennsylvania 6; Lafayette 44, Delaware 0; Lafayette 28, Lehigh 6.

Cornell 41, St. Bonaventure 0; Cornell 55, Rochester 0; Cornell 110, Western Reserve 0; Cornell 31, Colgate 7; Cornell 59, Dartmouth 7; Cornell 41, Columbia 7; Cornell 14, Springfield 0; Cornell 41, Pennsylvania 0.

Washington and Jefferson 14, Bethany 0; W. and J. 28, Bucknell 0; W. and J. 54, West Virginia Wesleyan 0; W. and J. 14, Carnegie Institute of Technology 0; W. and J. 14, Lehigh 7; W. and J. 17, Syracuse 10; W. and J. 49, Westminster 14; W. and J. 7, Pittsburg 0; W. and J. 13, West Virginia 0.

Harvard 10, Boston University 0; Harvard 16, Middlebury 0; Harvard 3, Holy Cross 0; Harvard 19, Indiana 0; Harvard 10, Georgia University 7; Harvard 21, Penn State 21; Harvard 0,

Centre 6; Harvard 3, Princeton 10; Harvard 9, Brown 7; Harvard 10, Yale 3.

Yale 28, Bates 0; Yale 14, Vermont 0; Yale 34, North Carolina 0; Yale 23, Williams 0; Yale 14, U. S. Military Academy 7; Yale 45, Brown 7; Yale 28, Maryland 0; Yale 13, Princeton 7; Yale 3, Harvard 10.

Princeton 21, Swarthmore 7; Princeton 19, Colgate 0; Princeton 0, U. S. Naval Academy 13; Princeton 0, Chicago 9; Princeton 34, Virginia 0; Princeton 10, Harvard 3; Princeton 7, Yale 13.

U. S. Naval Academy 41, North Carolina State 0; Navy 53, Western Reserve 0; Navy 13, Princeton 0; Navy 21, Bethany 0; Navy 6, Bucknell 0; Navy 7, Penn State 13; Navy 7, Army 0.

U. S. Military Academy 28, Springfield 6; Army 7, New Hampshire 10; Army 19, Middlebury 0; Army 33, Lebanon Valley 0; Army 21, Wabash 0; Army 7, Yale 14; Army 53, Susquehanna 0; Army 0, Notre Dame 28; Army 49, Villanova 0; Army 0, Navy 0.

Iowa University 32, Knox 14; Iowa 10, Notre Dame 7; Iowa 14, Illinois 2; Iowa 13, Purdue 6; Iowa 41, Minnesota 7; Iowa 41, Indiana 0; Iowa 14, Northwestern 0.

Notre Dame 56, Kalamazoo 0; Notre Dame 57, Depauw 0; Notre Dame 7, Iowa 10; Notre Dame 33, Purdue 0; Notre Dame 7, Nebraska 0; Notre Dame 28, Indiana 7; Notre Dame 28, Army 0; Notre Dame 48, Rutgers 0; Notre Dame 42, Haskell Indians 7; Notre Dame 21, Marquette 7; Notre Dame 48, Michigan "Aggies" 9.

Centre 14, Clemson 7; Centre 14, Virginia Polytechnic Institute 0; Centre 28, St. Xavier 6; Centre 98, Transylvania 0; Centre 6, Harvard 0; Centre 55, Kentucky 0; Centre 21, Auburn 0; Centre 25, Washington and Lee 0; Centre 21, Tulane 0.

California 51, Nevada 6; California 39, Oregon 0; California 14, Washington State 0; California 38, Southern California 7; California 72, Washington University 3; California 42, Stanford 7.

Soccer activities of the year were marked by the organization of the American Soccer League to comprise eight clubs representing New York, Brooklyn, Harrison, Philadelphia, Jersey City, Fall River, Holyoke, and Pawtucket. The Robins Dry Dock eleven was the leading team of 1921, winning the championship cups offered by the United States Football Association and the American Football Association. The Robins captured the first trophy by defeating the Scullin Steel F. C. of St. Louis, 4 goals to 2. The A. F. A. rival to be beaten was the Fore River F. C., the score being 5 to 1 in favor of the Robins.

Efforts made to boost professional Rugby football in the larger cities of the Eastern United States met with little success, but in the Middle West, particularly in Chicago and vicinity, such contests attracted large crowds.

FORDHAM UNIVERSITY. A Roman Catholic university at Fordham, N. Y. C.; founded in 1841. The number of students in 1921 was 2184 and there were 172 members of the faculty. President, Rev. E. P. Tivnan, S. J.

FOREIGN EXCHANGE. See FINANCIAL REVIEW.

FOREIGN TRADE. See FINANCIAL REVIEW; UNITED STATES, and articles on foreign countries.

FOREST POLICY. See UNITED STATES DEPARTMENT OF AGRICULTURE.

FORESTRY. A most encouraging development of the 1921 season was the general awakening of public opinion to the necessity of protecting the remaining forests from fire injury and from wasteful exploitation. This was brought about in part by President Harding's proclamation setting aside the week of May 22-28 as forest protection week, and in part by the public press, which rendered efficient service by means of able editorials and suggestive cartoons. National interest was reflected in many of the States.

The growing public interest in timber production and the need for forest protection and reforestation throughout the country was generally evident in the State appropriations for forestry during 1921, which in most cases were substantially increased. According to figures obtained by the United States Forest Service, the total appropriation of 32 States amounted to \$4,065,434, an increase of 78 per cent over that of 1919. California's appropriation advanced from \$45,800 in 1919 to \$398,800 in 1921, an increase of 771 per cent.

FOREST FIRES. Although no forest fires of a catastrophic nature occurred during 1921, yet the fire-fighting funds of the United States Forest Service became exhausted early in the season, showing the total inadequacy of the amounts usually appropriated for this purpose. A hazard of unique nature was created by a tornado which swept the west side of the Olympic Peninsula in the State of Washington on Jan. 29, 1921. Approximately 6,000,000,000 ft. of timber were felled in a tangled mass, creating a most formidable fire trap which threatened not only the down timber itself but also the adjacent forests, including the Olympic National Forest. Due to the effective protective measures carried on coöperatively by the United States Forest Service, State authorities, and private owners, the first and most dangerous season was successfully passed. The loss of marketable timber was very large, due to the nature of the disaster and to the fact that the greater part of the down timber consisted of western hemlock and spruce, both of which species are subject to rapid decay.

The first national forest fire conference ever held was recently completed at Mather Field, near Sacramento, Calif. Representatives from seven national forest districts were present. A programme of some 70 topics, embracing practically every phase of national forest-fire control, was carried out in general discussions and in committee meetings.

In Pennsylvania funds were appropriated for the erection of 50 steel observation towers on commanding elevations, these to be thoroughly equipped with all modern devices for the detection and reporting of fires. Congress evidenced a greater appreciation of the importance of fire protection by increasing the appropriation for fire fighting and, under the provisions of the Weeks Law, enacted March 1, 1911, providing for co-operative fire protection between the National Government and the States, caused a much greater sum, \$400,000, to become available for the year beginning July 1, 1921.

DEPLETION OF THE VIRGIN FORESTS. The United States Forest Service and other agencies continued during the year to emphasize the serious decline in the timber resources of the United States. W. B. Greeley, United States Forester, in his annual report, pointed out that three-fifths of

the virgin forests have disappeared and that the present drain upon the balance is over four times their production. He also directed attention to the vast areas of denuded and unproductive lands which should be used for the growing of forest crops.

Keen interest was manifested among foresters and landowners in general in two proposed Federal forestry bills, known respectively as the Snell bill and the Capper bill, both of which concerned the exercise of public control over privately owned forest lands, one through police powers and the other through the medium of taxation on forest products. Both measures contained provision for the extension of organized fire protection over all classes of forest land. The National Forestry Policy Committee of the United States Chamber of Commerce, holding open meetings in several important cities during the summer season for the purpose of collecting the views of the various interests, announced upon the close of their sessions that there was an apparent willingness on the part of lumber interests to support a constructive national forest policy, the fundamental basis of which should be fire protection.

ALASKA FORESTS. The decline in the forest resources of the United States diverted attention to other sources of supply, notably Alaska. W. B. Greeley, in his annual report as United States Forester, presented some interesting statistics showing that the national forests of Alaska comprise approximately 20,000,000 acres, containing an estimated quantity of 75,000,000,000 ft. of usable timber. These forests yield approximately 86 per cent of all timber used in the Alaskan territory and will in the future probably furnish much material for the United States. Two sales of Alaska pulp timber aggregating 700,000,000 ft. were negotiated by the Forest Service during the year. All bona fide undertakings for the development of timber resources of Alaska are to be encouraged provided such are consistent with the public interest in maintaining permanent production. Transportation by land and sea is deemed the primary need for the proper development of Alaskan resources.

PULP WOOD. The Nation's pulp wood supply received considerable attention during the year. As an illustration of the extent of the industry, it was estimated that a total of 6,114,072 cords of pulp wood were used in the United States in the year 1920. Pennsylvania alone used 489,211 cords, of which it was necessary to import 74 per cent. The Dominion of Canada, realizing the importance of the pulp wood industry, authorized the establishment of a paper and pulp mill in Manitoba to cost not less than \$1,000,000 and a similar mill in British Columbia at a probable cost of \$6,000,000. Pulp and paper manufacturers in general exhibited a keen interest in the possibilities of growing wood for their own use, and many concerns commenced to grow trees for transplanting. The woodland sections of the American Paper and Pulp Association found that the actual cost of commercial tree growing was much lower than had been generally estimated.

THE NATIONAL FORESTS. The net area of the National Forests at the close of the fiscal year ended June 30, 1921, was 156,666,045 acres, a gain of 633,992 acres during the year. The largest single increase unit was 321,360 acres added to the Modoc National Forest in northern California. A

total of 92,072 acres were eliminated from the National Forest during the period, but chiefly in the form of small areas adaptable to agricultural purposes. The total expenditures of the Forest Service during the fiscal year ended June 30, 1921, were \$6,220,822, an increase of \$378,953 over the preceding year, due entirely to increased expenditures for fire suppression. The receipts of the National Forests during the same period were \$4,468,940, a decrease of \$324,542.

FOREST PRODUCTS. The work of the Forest Products Laboratory at Madison, Wis., was continued with success during the year. One of the important problems studied during the year was that of the utilization of second growth timber and of species hitherto deemed of too little value to be worth cutting. Among such inferior species are the jack pine and the aspen, which occur in large stands in the Lake States. The most important new project undertaken at the Forest Products Laboratory was a study of the practicability of cutting timber of the exact size required for specific manufacturing purposes. Since much of this material is now cut from large logs, it was shown that 50 per cent of the lumber is often lost under the present wasteful system.

FOREST RESEARCH. Under the stimulus imparted by the consciousness of rapidly diminishing forests, research received more extended consideration during the year. A noteworthy achievement was the establishment of two new experimental forest stations, one at Asheville, N. C., in the heart of the Appalachian district, the second in Louisiana, in the southern pine belt. Statistics show that the production of merchantable timber decreased 60 per cent in the Appalachian area during the past decade and that the southern pine supply was rapidly diminishing under a policy of unrestrained exploitation which utterly disregarded the future. In view of the importance and wide scope of the problems needing solution in both these areas, as pointed out by E. H. Clapp, Assistant United States Forester, in Circular 183 of the United States Department of Agriculture, entitled "Forest Experiment Stations," these stations were established at a most opportune time and can, if properly supported, do much to remedy a deplorable situation. Agitation for the foundation of similar stations in other parts of the United States was shown in the form of bills presented to Congress in the late fall.

During the year the Swiss Forest Station at Zurich published a report upon an investigation concerning the flow of two streams arising in very similar watersheds, differing only in the amount of forest cover. The results, based on many years of painstaking work, revealed that, whereas the total annual flows were proportionately equal, the flow of the heavily wooded stream was quite constant and without floods, and the watershed of the wooded stream much less subject to erosion and drought injuries.

EDUCATIONAL. The annual session of the Society of American Foresters was held jointly with that of the Canadian Society of Forest Engineers at Toronto, Canada, Dec. 27 and 28, 1921. The annual meeting of the Association of State Foresters was held in the field in New York State in September, at which time representatives from 16 States gathered to study the white pine blister rust control in actual operation. At the second decennial reunion of the alumni

of Yale Forestry School, held in December, 1920, it was announced that 61 per cent of the graduates of the school were actively engaged in various branches of forestry. The Yale Forestry School received a gift of \$300,000 during the year from William H. Sage to be used for the erection of a building which will serve as a memorial to his son DeWitt Linn Sage, of the class of 1907. This building will afford an opportunity of housing the forestry library, long exposed to fire hazard, and of exhibiting museum materials in a satisfactory manner.

MISCELLANEOUS. The use of aeroplanes and air ships as detectors of forest fires continued to receive considerable attention during the year, particularly on the part of large private corporations. It is evident from the experiences obtained that air craft will play a very important rôle in future fire protection, especially in inaccessible areas reached with difficulty by the ordinary means of transportation.

John H. Reisner, in a progress report of forestry activities in China during the year, stated that tree planting continued to show a steady increase. A greater part of the forestry enterprises in China were said to be directed by Americans or American-trained foresters.

The National Geographic Society of the United States, supported by a number of public spirited citizens, purchased the Martin tract, a square mile within the heart of the Sequoia National Park, and in turn donated this tract to the United States—a most worthy example of patriotic effort.

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FOREST TREE DISEASES. See **BOTANY.**

FORMOSA, or TAIWAN. An island belonging to Japan lying off the coast of the Chinese province of Fukien. Capital, Dai-hoku or Taipei. Area, 13,839 square miles; population (1918), 3,698,918. Population of Dai-hoku is given at 102,249. The other large towns are Tainan, Kagi, and Taichu. The chief agricultural product is rice and among the others are sugar, tea, sweet potatoes, jute, ramie, and turmeric. Camphor, which is a government monopoly, is raised in the forests. Among other industries are fisheries, sugar manufacturing, flour-milling, tobacco, oil,

spirits, iron work, glass, bricks, soap, etc. Live stock are raised in considerable numbers. Mining has developed latterly. The commerce is largely with Japan. In the foreign trade China and the United States have taken the lead. In 1919 the imports from Japan amounted to 90,526,766 yen and the exports to 141,885,540 yen. The chief exports in that year were: Tea, coal, sugar, and camphor, and the chief imports, opium, rice, oil-cake, beans, and tea seed. The revenue and expenditure for 1920-21 balanced at 94,451,263 yen. The main items of expenditure were internal administration and public works and the main items of revenue were inland taxes and customs and the returns from public enterprises. The Japanese government has subsidized the local budget annually in amounts ranging from 5,000,000 to 9,000,000 yen. In 1918-19 there were 345 miles of railway open for traffic. Post offices in 1919 numbered 166 and telegraphs had a mileage of 692. Formosa was ceded by China to Japan, May 8, 1895, and Japan's civil government was established there March 31, 1896. Colonization on a considerable scale was undertaken by the Japanese in 1909 and a number of Japanese villages grew up with a population estimated in 1916 at 3268. The island is under a Japanese governor-general.

FORNEY, JAMES. Military officer, died, February 2. At the time of his death he was brigadier-general of the United States Marine Corps. He was born at Lancaster, Pa., Jan. 17, 1844; entered the United States Marine Corps as second lieutenant, March 1, 1861, and served in the Civil War. He was on board the *Brooklyn* in the battles of Forts St. Philip, Jackson, and Chalmette; in the capture of New Orleans; and in the attacks on Vicksburg, Baton Rouge, and Galveston. He was in command of the marines in Formosa in 1867, and on various duties thereafter, including, service in the North Pacific squadron; and in command of the marines at various stations. During the Spanish-American war he was in command of the camp of Spanish prisoners from the fleet of Admiral Cervera; and he commanded the first brigade of marines in the Philippine Islands in 1901-02.

FORRER, LOUIS. See **NECROLOGY.**

FORTY-EIGHT, COMMITTEE OF. This is a political organization and consists of representatives from the 48 States of the Union. It is engaged in the organization of a National Liberal Party along liberal lines. In 1921 it organized fourteen State units of the National Liberal Party. It issues a fortnightly political news service to some 400 leading papers and periodicals throughout the country and is rapidly developing a strong constituency. The outstanding feature of the Committee's work is its method. Contrary to other national political movements, it is building up its organization State by State, after which a national conference will be called of delegates from the States so organized. Such a conference is contemplated in 1922. It intends to contest a large number of congressional districts and to obtain a nucleus of representatives who will help the more liberal elements in Congress to a substantial measure of immediate reform. Membership in the Committee or Party is on a dues-paying basis, the amount per month being left to the discretion of each person enrolling. It makes its appeal to "every American citizen dissatisfied with reaction,

resentful of unfulfilled promises, tired of political cure-alls, and ready to work for the constructive changes required to end our economic chaos, our political tyranny, and the madness of competitive armaments." Its platform purposes "the abolition of privilege, meaning by privilege the unjust economic advantage by possession of which a small group controls our natural resources, transportation, industry and credit, stifles competition, prevents equal opportunity of development for all, and thus dictates the conditions under which we live." To accomplish this, it urges "Public control of natural resources by taxation of all land values, including land containing coal, oil, natural gas, mineral deposits, large water powers and large commercial timber tracts, in order to prevent monopoly and speculation, to aid industry, and to force idle lands into use; public ownership of railroads, canals, and pipe lines, including all necessary distributing and terminal facilities, and all necessary means of communication, in order to give the same service to all users; and equal rights, economic, legal, and political, for all citizens, and all Civil Rights, including Free Speech, Free Press, and Peaceable Assembly, as guaranteed by the Constitution."

The National Headquarters are at 15 East 40th Street, New York. J. A. H. Hopkins is Chairman of the Executive Committee; Allen McCurdy is secretary and Charles V. Ingersoll, treasurer.

FOSTER, MURPHY JAMES. Former United States Senator from Louisiana, died, June 12. He was born at Franklin, La., Jan. 12, 1849; studied at Washington and Lee University and graduated at Cumberland College in 1870. He afterwards studied law, and engaged in practice at Franklin, La. He was a leader in the successful campaign against the Louisiana State lottery; governor of Louisiana, 1892-1900; and United States Senator, 1901-13. After this he returned to the practice of law and was appointed United States collector of customs. In politics he was a Democrat.

FOWLER, BENJAMIN AUSTIN. Ranchman, died, April 11. He was prominent in agricultural and irrigation developments in Arizona. He was born at Stoneham, Mass., Dec. 14, 1843; studied at Phillips Academy, Andover, Mass.; and served in the signal corps during the Civil War. He afterwards graduated at Yale, 1868. He was for seventeen years engaged in the subscription book business, and then went into ranching near Phoenix, Ariz. (1899), where he became director of a title and trust company, president of the board of trade, and prominent in other institutions. In 1901 he was a member of the State legislature; and in 1910-11, president of the National Irrigation Congress.

FOWLER, WILLIAM WARDE. British classical scholar and ornithologist died at Hingham, England, in June. He was born at Langford, Somerset, May 16, 1847, studied at Oxford where he took high classical honors and was elected fellow of Lincoln. He held this fellowship throughout his life, but became a tutor in 1873 and sub-rector in 1882. Among his classical writings may be mentioned the volume on *Julius Caesar* in the *Heroes of the Nations* series (1892); *The City State of the Greeks and Romans* (1893); *Roman Festivals of the Period of the Republic* (1897); *Religious Experience of the Roman People to the Age of Augustus* (1911). He wrote his *Year with*

the Birds (1886) which dealt with bird life as observed during his vacations at Oxford and Hingham and in the Alps. This was followed by *Tales of the Birds* and *More Tales of the Birds*, consisting of stories for children. During the war he wrote *Essays in Brief for Wartime* (1916) and in 1920 he published a volume of *Roman Essays and Interpretations*.

FRANCE. A European republic constituting the westernmost state of central Europe, separated from England by the Channel and the Straits of Dover; lying between 42° 20' and 51° 5' N. latitude, and 7° 45' E. and 4° 45' W. longitude; area before the war 207,054 square miles; after the war increased by the departments of Bas-Rhin Alsace, 1843 square miles; Haut-Rhin, 1354 square miles; and Moselle, 2403 square miles, these additions corresponding to Alsace-Lorraine under the German empire. Capital, Paris.

POPULATION. According to the census of 1911 the population was 39,602,258, an increase of about 350,000 since 1906. For other details of that census including population of departments, chief cities, and vital statistics, see preceding **YEAR BOOKS**. The provisional figures of the French census taken March 6, 1921, were published, July 1. The figures given corresponded to those of the census of March 5, 1911, in that they did not include the population of Alsace-Lorraine. The total number of persons residing in France on March 6, 1921, was 37,499,394, as compared with 39,601,509 in 1911. The figures for 1921, however, did not include the members of the French military forces in foreign countries and on the Rhine. There was therefore, a decrease in the population of 2,102,115, from which must be deducted a considerable number of soldiers, as above mentioned. The main reason for this decrease was the fact that France lost during the World War nearly 1,500,000 men, while the influenza epidemic of 1918-19 was responsible for the premature death of several hundred thousand persons. The statistics for 1921 showed that on March 6, 1921, there were 1,415,128 foreigners included in the census, as compared with 1,159,835 in 1911, an increase of 255,293. This increase was accounted for to a great extent by the presence in the northern regions of France of a large army of foreign laborers engaged on reconstruction work and of a considerable number of Italian and Spanish workers in the south of France. The departments of France with the largest number of foreign residents were as follows: The Seine, in which Paris is situated, with 233,849; the Nord with 171,746; Bouches du Rhone, including the city of Marseille, with 147,057; the Alpes Maritimes, 100,717, a large number of whom are foreign residents in the fashionable resorts on the Riviera; the Var and Herault, two of the large wine-producing districts, employing foreign labor, with 52,495 and 52,211, respectively.

EDUCATION. Primary education is free and compulsory for children from six to thirteen years of age. In 1919-20 primary and higher schools of France and Algeria excluding Alsace-Lorraine, numbered 68,015 with 102,433 teachers and 3,835,816 enrolled pupils. The infant schools numbered 2849 with 6241 teachers and 227,156 enrolled pupils. Secondary education is supplied by the state in the lycées and by colleges maintained by the communes; also by free schools supported by private individuals and associations.

The public secondary institutions in France and Algeria in 1919 excluding Alsace-Lorraine were as follows: Lycées 67,730 pupils; communal colleges 32,500 pupils. For girls there were in 1919, 55 lycées and colleges, with 39,274 pupils, and 47 secondary courses with 5894 pupils. Higher education is supplied by the state universities and by special schools directed by the state and also by various private faculties and schools. The universities are 16 in number and are situated at the following places: Paris, Strasbourg, Lyons, Bordeaux, Toulouse, Grenoble, Montpellier, Aix-en-Provence, Rennes, Poitiers, Nancy, Caen, Dijon, Lille, Clermont-Ferrand, and Besançon. Of these the largest is the University of Paris with 11,026 students, July 31, 1919. The next in numerical importance are Bordeaux, 2241; Toulouse, 1764; Grenoble, 1724; Aix-en-Provence, 1179; Strasbourg, 1122. The number of students in the faculties of law, medicine, letters, sciences, and pharmacy in the state institutions numbered in 1919, 29,890. Of these the most numerous attended were in their order of importance, law, medicine, letters, and sciences. Besides the above there are various higher institutions dependent on the ministry of public instruction including the Collège de France; the Museum of Natural History, which gives instruction in sciences; the practical school of higher studies with its seat at the Sorbonne giving instruction in history, philology, and the sciences; the superior normal schools; the École des Beaux-Arts and many others. Besides these there are the diverse institutions of technical instruction dependent on other ministries, including schools of commerce, agriculture, military science, mines, etc. Finally there are many technical schools of lower grade dependent on the ministry of commerce.

AGRICULTURE. The following table shows the acreage and production of cereal crops in France in 1920 as compared with 1913, 1918, and 1919, the acreage and production of Alsace-Lorraine being included in the figures for 1920, but not in those for previous years:

	Year	Acres sown	Metric tons produced
Wheat:			
1913		16,166,134	8,691,905
1918		10,992,962	6,143,584
1919		11,375,974	4,965,370
1920		12,586,435	6,448,218
Spelt:			
1913		304,062	149,064
1918		206,418	95,982
1919		238,258	96,794
1920		277,671	127,987
Rye:			
1913		2,905,230	1,271,475
1918		1,745,718	734,986
1919		1,906,608	729,937
1920		2,147,757	876,139
Barley:			
1913		1,878,500	1,043,760
1918		1,371,083	598,200
1919		1,386,700	499,984
1920		1,640,551	835,688
Oats:			
1913		9,832,949	5,182,601
1918		6,720,870	2,561,976
1919		7,055,697	2,493,584
1920		8,278,637	4,229,782
Buckwheat:			
1913		1,115,502	566,435
1918		769,137	224,180
1919		812,083	271,969
1920		869,659	369,521

	Year	Acres sown	Metric tons produced
Corn:			
1913		1,132,800	543,075
1918		753,693	247,907
1919		736,050	253,411
1920		829,183	387,814
Potatoes:			
1913		3,825,345	13,585,965
1918		2,940,019	6,519,722
1919		3,103,899	7,730,562
1920		3,560,424	11,637,765

The average weight per bushel in 1920 was: Wheat, 58.7 pounds; spelt, 56.6 pounds; rye, 55.5 pounds; barley, 49.6 pounds; oats, 36.6 pounds; buckwheat, 50.3 pounds. Wine and cider production in thousands of gallons in 1920 was as follows: Wine, 1,310,719; cider, 212,005. The production of fruits and nuts in 1920 in metric tons was as follows: Apples (exclusive of apples for cider), 68,480; pears, 34,315; olives, 22,864; cherries, 21,614; plums, 20,177; peaches, 17,255; apricots, 7466; strawberries, 6737; currants, 2153; chestnuts, 152,924; walnuts, 31,440; almonds, 4370; and smaller quantities of oranges, mandarines, lemons, raspberries, etc.

The number of farm animals, Jan. 1, 1920, was as follows: Horses, 2,413,190; cattle, 12,373,660; sheep, 8,990,990; pigs, 4,080,360; goats, 1,166,770; asses, 303,100; mules, 167,180. At the end of 1920 cattle numbered 12,755,720; sheep, 9,376,630; and pigs, 4,585,280.

In 1921 according to the report of the Minister of Agriculture the cereal crop of France, including the Alsace-Lorraine region was as follows: Wheat, 5,329,830 hectares; 87,842,770 quintals; meteil, 108,220 hectares; 1,460,880 quintals, rye, 874,280 hectares; 11,302,030 quintals. These figures show that the wheat crop nearly approached the level of production before the war, which was remarkable in view of the fact that the area under cultivation was nearly one million hectares less. The average output per hectare was the highest that had ever been noted in France. The 1921 crop was slightly superior to the average annual production in the period 1909-13.

Before the war the productive forests of the country had an acreage of about 185,000,000, of which about 177,000,000 were under private ownership the rest being in possession of the central government or of the communes. During the war vast areas were destroyed not only at the front but in the adjoining regions where they were drawn heavily upon for firewood, trench timber, and other needs. The war zone comprised 11 of the forest-bearing departments. The loss to France was estimated at an annual shortage of over 35,000,000 cubic feet. A special reconstitution service was established under the Water and Forest Board after the war which in 1921 was actively engaged in measures for reforestation.

Silk production is carried on under government encouragement, especially in the departments of Sard Ardèche, Drôme, and Vaucluse but also in twenty other departments. In 1918 there were 16,057 producers and the total value of the output was 22,258,000 francs; in 1919, 52,401 producers and 20,121,000 francs; in 1920, 65,592 producers. While the figures for the value in 1920 were not available the total output in that year was 9202 kilos, nearly four times as great as that in 1919.

MINERAL PRODUCTION. The leading minerals and the mineral production in metric tons in 1918 were as follows: Coal and lignite, 26,259,083; iron ore, 1,572,000; pig iron, 1,292,958; worked steel, 1,800,079; finished iron and steel, 193,812. The output of pig iron in 1919 was 2,412,149 metric tons. The coal output in 1920 was 25,276,000 metric tons; the output of the Saar basin was 9,410,433 tons. In 1919-20 the sugar factories yielded 155,101 metric tons of refined sugar. In 1920 the production of alcohol was 28,489,000 gallons.

According to the estimates of 1921, the coal deposits in France at a depth of not more than 3937 feet amounted to 13,143,000,000 tons, and at a depth of 5905 feet amounted to 17,600,000,000 tons. In the year before the war France produced 40,844,000 tons and consumed 64,834,000 tons, obtaining the additional 23,990,000 tons from England, Belgium, and Germany. The following table shows French coal production during the eight years ending with 1920:

	Tons
1913	40,844,218
1914	26,568,258
1915	19,523,863
1916	21,310,000
1917	28,891,723
1918	25,000,000
1919	22,476,786
1920	25,274,304

The production of iron ore in France during the first six months of 1921 reached the following figures: January, 1,516,662 metric tons; February, 1,291,621 tons; March, 1,270,947 tons; April, 1,213,787 tons; May, 1,125,319 tons; and June, 1,114,532 tons. The total at the end of June accordingly was 7,532,868—1,693,464 tons more than the output in the first half of 1920. Of pig iron, the half-year's output aggregated 1,744,644 metric tons, against 1,272,518 tons in January-June of 1920. This gain of 37 per cent in pig-iron production was approached but not quite equaled by the output of steel. For January-June the steel plants of France had a total output of 1,527,950 metric tons of steel ingots and castings, against 1,179,998 tons in the first six months of 1920, a gain of practically 30 per cent.

RECONSTRUCTION. Figures for the damage done to industrial establishments during the war showed that at the time of the armistice the establishments suffering damage numbered 20,603 and that on the basis of their value in 1900 the loss exceeded 7,000,000,000 francs, of which 920,000,000 francs occurred to the coal mines. Moreover the productive power of the damaged works had been reduced from 25 per cent to 93 per cent, the chief loss being in the textile industry. The 10 devastated departments contained some 30 per cent of French industries and produced 35 per cent of the sugar, 50 per cent of the coal, 63 per cent of the steel, 81 per cent of the textiles and 92 per cent of the iron, of the country. After the armistice a Board of Industrial Reconstruction was established by the government and this was aided by the Central Associations for the Revival of Industrial Activity in the Invaded Areas, by the Central Purchasing Board, and by regional committees. Excellent work had been done by all these organizations. As an illustration of the difficulties in the way of distributing

building materials, foodstuffs, and other means of reconstruction, it may be noted that 5600 kilometres of railway line had been destroyed or rendered useless, 50 bridges, 12 tunnels, 51,547 kilometres of highway and 3168 engineering works of various kinds, to say nothing of the obstruction of canals. Six months after the close of 1918 about ten per cent of the personnel of the damaged works had returned. A year later, July 1, 1920, the personnel numbered 42 per cent of that employed in 1914. At the end of another year, July 1, 1921, it was reported at over 47 per cent. The main difficulty in the way of reconstruction was this necessity of recruiting the personnel. Everywhere there was a scarcity of labor which was roughly estimated at 250,000 men. The housing problem was serious, but considerable progress had been made toward solving it.

THE DEVASTATED REGIONS. During 1921 monthly statistics were published by the government showing the progress made in restoring the invaded regions. These indicated the steady return of workmen to the factories, which had been in part restored. As a result of an investigation the following figures in respect to output were published in October: In general the output of the factories of the damaged or destroyed factories which had been restored, amounted to about 50 per cent of the output in 1914 and it was estimated that they were able to employ about 55 per cent of the manual labor engaged in them before the war. The details of the leading industries were as follows:

Industries	Production per cent compared with 1914	Labor per cent compared with 1914
Textiles	45	55
Metallurgy	50	55
Ordinary Metal Working	66	63
Chemicals	58.5	63
Cloth and Clothing	58.5	73
Hides and Leather	45	67
Mines	31	36
Total	50	55

In order to employ an amount equal to that before the war, the output would have to be brought to the same point, which was difficult in view of the shorter hours of work. But on the other hand there was the advantage of a better system in the distribution of manual labor and better hygienic conditions, etc.

WAGES. The course of wages from 1911 to 1921 was the subject of official investigation of which the results were published toward the close of the year. The average daily wage at the beginning of 1921 for manual laborers was 14 francs; weavers, 143 francs; workmen in other industries from 16 to 20 francs; working-women from 9 to 10 francs. The above, however, only applied to cities other than Paris. In Paris the daily wage of workmen was generally from 25 to 32 and for working-women about 16 francs. In comparison with 1911 the hourly rate in cities other than Paris had about quintupled and the daily wage had a little more than quadrupled. The rate of increase in particular industries from 1911 to 1921 was as follows: Bricklayers, 378 per cent, terrassiers and stone cutters, 350 per cent; weavers, ropemakers, coopers, blacksmiths, and day laborers (unskilled) 330-335 per cent.

These trades showed the greatest increase and they were the ones that had been the lowest paid before the war. The rate of increase was the slackest in the case of printers and binders—275 to 280 per cent. There were considerable differences in the level of wages in the different regions, the highest increase occurring in the liberated regions. As to the other trades, wages at the beginning of 1921 were from four to five times higher than in 1911. In the textile industries the spinners of Roubaix received an increase of

431,360,000 francs (\$83,252,480), respectively. The adverse French trade balance in 1920 fell to 12,970,194,000 francs, as compared with 23,919,667,000 in 1919, a net decrease of 10,949,473,000 francs. Expressed in dollars these figures are even more striking, the adverse balance in 1919 having been \$3,276,666,712 and in 1920 only \$894,496,139, a net gain for French trade of \$2,382,170,573.

The statistics of French trade, exclusive of specie, and bullion, by principal countries, during 1920, 1919, and 1913, are given in the following table:

Countries	1913		1919		1920	
	France	Dollars	France	Dollars	France	Dollars
IMPORTS						
United States.....	894,742,000	172,685,206	9,217,844,000	1,262,718,356	7,061,721,000	487,015,241
United Kingdom.....	1,115,136,000	216,221,248	8,800,911,000	1,205,604,247	6,746,959,000	465,307,517
Germany.....	1,068,800,000	206,278,400	755,272,000	103,461,918	2,658,429,000	183,339,931
Belgium.....	556,277,000	107,361,461	1,111,249,000	152,225,890	2,568,665,000	177,149,311
Argentina.....	369,268,000	71,268,724	1,613,817,000	221,070,822	2,053,819,000	141,642,690
Italy.....	240,513,000	46,419,009	1,017,198,000	139,342,192	891,530,000	61,484,828
Spain.....	281,592,000	54,347,256	1,464,233,000	200,579,863	849,368,000	58,777,104
Switzerland.....	135,242,000	26,101,706	737,848,000	101,075,069	802,940,000	55,375,172
Brasil.....	174,273,000	33,634,689	956,305,000	131,000,885	652,603,000	45,007,103
Algeria.....	330,841,000	63,852,313	1,223,698,000	167,629,863	960,475,000	66,239,655
Morocco.....	20,429,000	3,942,797	327,362,000	44,844,109	152,398,000	10,510,207
All other countries.....	3,234,219,000	624,204,267	8,573,530,000	1,174,456,164	10,006,044,000	690,072,000
Total.....	8,421,332,000	1,625,317,076	35,799,267,000	4,904,009,178	35,404,951,000	2,441,720,759
EXPORTS						
United States.....	422,623,000	81,566,239	892,801,000	122,301,507	1,770,892,000	122,130,484
Belgium.....	1,108,499,000	213,940,307	1,534,025,000	210,140,411	3,913,986,000	269,930,069
United Kingdom.....	1,453,887,000	280,600,191	2,116,220,000	289,893,151	3,511,943,000	242,202,965
Switzerland.....	406,150,000	78,386,950	713,102,000	97,635,205	1,441,694,000	99,427,172
Germany.....	866,766,000	167,285,838	1,559,466,000	213,625,479	1,180,261,000	81,397,310
Italy.....	305,796,000	59,018,628	677,661,000	92,830,274	1,061,516,000	73,208,000
Spain.....	151,232,000	29,187,776	387,618,000	53,098,356	883,676,000	60,943,172

404 to 485 per cent and the spinners of Troyes, of 637 per cent; weavers of Roubaix, 562 per cent and weavers of Rouen, 388 per cent. The average increase in agriculture was 400 per cent. As to the relation to the cost of living, it was believed that for France as a whole the movement of wages about kept pace with that increase. In 1916 the increase of wages had not responded to the mounting cost of living but at that time a large number of workmen were engaged in war industries at far higher rates than were paid in private industry. In 1917 the wages of the unskilled workmen had partly caught up to the increased price of necessities but had surpassed it on the average in 1919 and at the beginning of 1920. Then the decrease in wages in 1921 brought down the index figure to a point close to that of the index figure of prices and even somewhat lower.

COMMERCE. In 1920 the total foreign trade of France, exclusive of gold, silver, bullion, and the baser coins, reached 57,839,708,000 francs or \$3,968,945,379 (at 14.50 francs to the dollar), as compared with 47,678,867,000 francs or \$6,531,351,644 (at 7.30 francs to the dollar) in 1919, and 15,301,549,000 francs or \$2,953,198,957 (at 5.18 francs to the dollar) in 1913. The value of imports amounted to 35,404,951,000 francs (\$2,441,720,759) as against 35,799,267,000 francs (\$4,904,009,178) in 1919, and 8,421,332,000 francs (\$1,625,317,076) in 1913; while the value of exports was 22,434,757,000 francs (\$1,547,224,620) in 1920, 11,879,600,000 francs (\$1,627,342,466) in 1919, and 6,880,217,000 francs (\$1,327,881,881) in 1913. Imports of gold, silver, bullion, and the baser coins in 1920 amounted to 129,916,000 francs (\$25,073,788), as compared with 176,143,000 francs (\$33,995,599) in 1919 and with 974,980,000 francs (\$188,171,140) in 1913, and the value of exports during 1920, 1919, and 1913 was 425,401,000 francs (\$82,102,393), 36,601,000 francs (\$7,063,993), and

From January 1 to November 30 the imports amounted to 20,394,209,000 francs, and the exports, to 19,370,781,000 (merchandise), or an excess of imports of more than a billion francs. During the same period the year before the imports had amounted to 27,189,071,000, and the exports, to over 16,557,711,000.

Much was said during the year about commercial relations with Spain which were far from satisfactory. The new Finance Minister of Spain, Señor Cambo, had been appointed to that position after serving in parliament as a representative from Barcelona. It was believed that his financial policy was influenced by the requirements of the large Catalonian manufacturing towns, which were complaining of the difficulties occasioned by the rate of exchange and were threatening to close their factories, if the central government did not protect their industries by increasing the duties to the necessary degree. In France it was desired that French products should enter Spain under more favorable conditions. In April the Spanish government was asked to make certain reductions on French imports and to enter into a provisional commercial agreement which would relieve France from the heavy charge resulting from the surtax that compensated for the rate of exchange, but this was refused by the Spanish ministry. Later the French ambassador at Madrid informed the Spanish government that he considered the present tariff then in force wholly unacceptable as a basis for an understanding. There seemed no better prospect from the French point of view from the tariff bill which was to be made public on December 31. The tariff measures taken by Spain during the year aimed not only at the protection of national industries but at the suppression of all foreign competition. As an instance of Spain's tariff policy, the French cited the fact that the Ministry of War in the autumn refused a delivery

of 180,000 military blankets that had been proposed by a French group at a price of 7 francs apiece and had turned over the order to Catalan manufacturers at a price of about 40 francs apiece. French writers complained that a Chinese wall was being set up between the two countries by Spain. Finally the French government announced the termination of the *modus vivendi* in respect to Franco-Spanish trade, November 10. The reason for this according to the press was the failure of the Spanish cabinet to meet the requests of the French government for a new agreement that would result to the advantage of both countries. The new tariff would not serve as a basis for such an agreement and the Spanish government had not shown good will toward the French proposals. The termination of the *modus vivendi* caused much concern in Spain where it was extensively discussed in the press.

About the same time that France terminated her commercial understanding with Spain she pursued the same course with Italy, denouncing the accord with that country on November 1, to take effect after February 1. The news was received in Italy with concern but there was no indication of an actual rupture. The delay before the existing arrangement terminated gave time for matters to adjust themselves. The French defense of this action was that it was required by the necessities of French merchants. The clause of the treaty which gave France the most favored treatment had become a dead letter and the collection of customs duties had increased the charges on French products to a point in many cases where they were ten times as heavy as before the war. According to French accounts, French commerce was treated no better in Italy than in Germany.

FINANCE: THE BUDGETS, AND THE DEBT. The ordinary budget for 1921 was as follows: Ordinary expenditure, 22,327,000,000 francs; extraordinary expenditure, 5,498,000,000; total, 27,826,000,000; ordinary receipts 19,735,000,000; extraordinary receipts, 5,228,000,000; total 24,963,000,000. Special budget expenditure 16,539,000,000. The national debt, March 1, 1921, was 302,000,000,000 francs, as compared with 27,000,000,000, Aug. 1, 1914. Down to Jan. 1, 1921, France had advanced to the Allied governments the sum of 8,873,000,000 francs. The chief items being as follows in millions of francs: Russia, 4210; Belgium, 2286; Serbia, 706; Poland, 431; Greece, 376; Czecho-Slovakia, 100.

The budget for 1922 was adopted in the Chamber, December 15, as follows: Expenditures 25,140,000,000 francs; receipts, 24,327,000,000 francs. At the close of the year the national debt of France was placed at 328,000,000,000 francs of which, according to a statement in the French Senate in December, 146,500,000,000 were incurred after the war.

FINANCIAL DISCUSSION. In the autumn there was much discussion in the press of the efforts of the finance committee of the Chamber to balance the budget and keep within the ordinary budget the exceptional expenses. In the Chamber there were frequent questions on this subject addressed to the Minister of Finance, the Prime Minister, and the Minister of War. The policy of the Budget Commission was to diminish expenses but was criticised on the ground that it sometimes confused economies with reduction of credits. An economy would result from the removal of a

charge or an improvement of the service, whereas a reduction of credit simply meant as a rule a demand for a supplementary credit somewhere else. First of all the Commission had decided as a means of reducing expenses to put an end at once to the Cilician expedition, and a treaty of friendship with Turkey was in consequence brought about. As to Morocco, the question had come up as usual and some had contended that the effectives in Morocco should be reduced but such a course did not seem advisable. In regard to the war budget the policy had been to oppose any reductions that seemed to threaten the national security, but others had been accepted, for example, reduction of the credits for the manufacture of war material, certain reductions of the effectives, increase of the time of leave for soldiers, etc. The wisdom of this policy was questioned in certain quarters, in view of the European situation and the doubt whether Germany was either disarmed or peaceful in her intentions.

A careful summary and analysis of the budget was made public in a general official report in November, of which the chief points were as follows: The principle upon which the budget was based was the necessity of restoring confidence and of relieving productive energy from the danger of disastrous social experiments and from excessive burdens. The total expenses at that time were placed at 24,953,239,027 francs and the total receipts at 23,327,980,897 francs, thus leaving a deficit of 1,625,258,130 francs. The deficit of ordinary expenses as compared with ordinary receipts was 1,976,000,000 while the excess of extraordinary receipts over extraordinary expenses was 350,000,000. This would leave the actual deficit as above and it was expected that this deficit would be partly covered by the surplus accruing from a better financial administration. It seemed certain that the budget would balance without recourse to a loan since in place of the securities remitted in payment of the extraordinary tax on war profits would be issued treasury bonds to the required limit. These bonds would not represent any increase of the public debt and the transaction would simply mean the substitution of this amount of consolidated debt by an equal amount of floating debt. Nor would new taxes be necessary for the balancing of the budget. As to the effecting of economies, Parliament must not consent to any expense that was not absolutely necessary. There were many difficulties in the way. Certain measures of economy would be disastrous at a time when there were so many causes of disturbance and so great uneasiness. For example, in the matter of national defense: On the eve of the Disarmament Conference the naval Powers had increased their budgets; in Germany there was a strong current of pan-Germanism; and the League of Nations had given no signs of ability to maintain peace. Nevertheless there were means of economy that seemed practical, especially the suppression of monopolies. Although some of these services could best be administered by the government, it had appeared that the government conducted them at a loss and that an output inferior to what they would produce under private industry, as for example in the case of telephones and tobacco. It was recommended that tobacco should be turned over to private enterprise to the advantage both of the public treasury and the consumers. Also it

was possible to reduce the number of public functionaries. Already the government had proposed the striking from the list of 42,000 and even if that were done the number would still remain 147,000 greater than in 1914. It was argued that a measure of financial reorganization was necessary in order to permit the government to apply the fiscal laws voted by the legislature. According to the chairman of the finance committee the maximum to be expected from Germany was 68,000,000,000 gold marks. France needed for reconstruction between 60,000,000,000 and 80,000,000,000 francs. There was also the amount needed for pensions, placed at 4,000,000,000, and for interest on the sums already borrowed on this account placed at 2,000,000,000. In the budget discussion the proposal that the ordinary budget expenses should be covered by loans or by inflation of the currency was condemned. Of the total expenditure, interest and the administration of the public debt required 12,866,000,000 francs, leaving a little over 12,000,000,000 francs for other expenditures of which 4,821,000,000 were allotted to national defense, leaving a balance of 7,266,000,000 for foreign affairs, finance, education, agriculture, public works, etc. No new taxes were proposed, the taxation during the coming year being expected to yield more than present conditions indicated.

Debate in the Chamber of Deputies, which commenced on November 28, terminated December 15. The principles brought out in debate may be summed up as follows: Germany to be held to strict execution of her pledges; no new taxes to be imposed until the public is educated to present tax legislation; fiduciary inflation to be checked; and reduction to be effected in the operating expenses of the government. In carrying out this last principle provision was made for more efficient operation of the government monopolies and elimination of 50,000 government employees during 1922, about 35 per cent of the additional employees taken on since 1914.

FINANCE: TAXATION. During the first ten months of the year the returns to the French treasury from indirect taxes and monopolies amounted to 10,954,760,500 francs which was 951,550,400 francs less than the budget estimates. This difference was mainly due to the failure of the tax on business to yield the anticipated results. The customs tax also showed a lower yield than was expected, being about 729,037,000 francs. Other classes falling below the budget estimates were: The tax on stock exchange operations, 10,237,500 francs; the duty on wines, cider, and perry, 19,483,000 francs; spirits and costly wines, 27,006,000 francs; postal monopoly, 40,482,700 francs. On the other hand, the following classes showed an excess beyond budget estimates: Registration, 147,348,500 francs; stamps, 104,311,500; personal property tax 232,089,000; automobile tax, 52,230,000; railway transportation tax, 16,063,000; tax on petrol, 41,433,000; tobacco monopoly 230,266,000; and several other classes. From the revenue of the state domain the treasury received 631,985,900; and from the liquidation of stocks, 1,383,658,700. From the general income tax and taxes cedulaire only about a quarter of the total was collected, namely, 495,574,000 francs. In 1913 less than 20 per cent of the French revenue was supplied by direct taxation, while the 1921 estimates, taking a total

of official direct taxes, inheritance taxes, taxes on securities, war profits tax, and the portion of the incidence of the turnover tax which is undoubtedly direct, showed direct taxes as amounting to from 40 to 50 per cent of the total revenue. The depression of 1920-21 caused an increased share of these taxes to fall on business, and they were seriously felt for the first time during that period. The high points in the new régime were the income and "business turnover" taxes. The latter was very much favored by French businessmen at first, because they felt that the public would pay it. But the period of low prices and depression which followed caused the merchant to receive the greater part of the load. The existing form of the income tax was likewise objected to on the ground that agricultural interests and large fortunes did not pay their share, and that labor was exempt. Coming at a time when business was slowly and painfully issuing from a period of deep depression, this burden was acutely felt and served to impede progress, the more so since the new taxation had been an important factor in persuading investors to place their savings in tax-free government securities rather than in productive enterprises.

The following interpretation of French policy represents the point of view of its numerous critics during the year: The central fact of French finance was the expectation of German payments. Its operations were based largely on false hopes, and consisted largely in a sort of juggling of accounts, such as carrying as extraordinary expenses all amounts in excess of receipts from revenue and taxation, trusting to ultimate solvency by means of German reparations. In the course of the year, however, the government's anticipation became less sanguine. In March, M. Briand was still insisting on Germany's payment of sums which economists everywhere regarded as impossible, and the French finance minister, M. Doumer, was asking for still more. The former president, M. Poincaré, consistently with his extreme nationalism professed surprise that Germany was not made to pay on the exact date appointed the installment of twelve billions which was due. The government was even criticised for accepting as the total German debt, so small an amount as one hundred thirty-two billions. Rather than do this the government ought, according to the critics, to have seized the Ruhr basin. In effect the French budget carried on the deficit side of its account the expenditures in the invaded regions and war pensions, and on the credit side, the expected contributions from Germany. Gradually, however, French public men began to realize that Germany would be unable to meet her obligations. Then came the separate agreement of Wiesbaden for the payment of a portion of the debt in kind. The rapid collapse of the mark was one of the causes of the change in French expectations. Certain French writers at the close of the year admitted the danger of an insolvent Germany, and many articles were written to the effect that Germany would default in her January payment, not because of obstinacy, but because of lack of money. The Reparations Commission went from Paris to Berlin to study the causes of the disaster. From this time on the cry in France that Germany must and will pay which had been continuing for three years, and which was the basis of the French

financial policy, tended to be less unanimous. From the budget figures the deficit that France would have to face appeared to be only one or two billions, but in reality it was from twenty to twenty-five billions, and this vast amount would have to come from public loans, taxation, the issuing of paper money, etc. If Germany were really unable to pay, the French financial policy of the past three years would thus have been utterly wasted. The French press was unwilling to face this possibility, and it was generally argued in the newspapers that the collapse of the mark had occurred because the Germans desired it to collapse. In some quarters it was argued that France would have to resort to military measures.

FINANCE: QUESTION OF THE DEBT. The debt figures above quoted, namely, 328,000,000,000 francs of which 146,500,000,000 had been incurred since the war, were those presented by a French Senator, M. Chéron, before the Senate at the close of the year. Of this indebtedness 69,000,000,000 consisted of advances against the German indemnity for reparations, and was classed in the budget as recoverable; but M. Chéron estimated that at most 45,000,000,000 of that sum would be recovered by France in the next eight years and that during the same time France would have spent a further 100,000,000,000 on reconstructions and pensions.

Another large item in this increase of indebtedness was 49,000,000,000 francs due to the breaking of the fixed exchange convention by England and America in March, 1919, with the consequent fall in the value of the franc. These figures of indebtedness were not admitted by the government, the finance minister, M. Doumer, declaring that he estimated the debt at 290,000,000,000 as "he did not believe any of the Allies would seek to be reimbursed at the present rate of exchange." Another item on the account was 28,000,000,000 for such expenses as the valorization of the mark in Alsace. According to M. Chéron the French debt on Jan. 1, 1930, would amount to 425,000,000,000 and would need at five per cent over 21,000,000,000 to meet interest. But the total revenue for 1921 was only 24,327,000,000. On what, then, was France to live, he asked. Interest on the public debt would absorb the total receipts of the budget. The inference drawn by him and other Senators from this analysis was that the Premier, M. Briand, must at all costs keep the promise he made to the Chamber that at the approaching conference at Cannes the obligations of Germany would not be reduced by a single centime.

INTERNAL WATERWAYS. In the autumn the government was concerned with two measures that had just passed Parliament for the development of the canal system. The first concerned the canals from the Marne to the Rhine, and from the coal beds of the Saar, and the canalization of the Moselle between Metz and Thionville; the second with the canals of the Berri, the Nivernais, the Midi, and the branch canal of the Garonne. These projects were part of a programme of public works that had been developed for 1921, including besides these schemes for canals, various plans for the distribution of electric power. Its realization was expected to involve an expense of thirty billions, which was distributed over a period of 15 years.

SHIPPING. The vessels entered and cleared in 1919 with their tonnage were as follows:

Entered		Cleared	
1919	1918	1919	1918
French.... 6,579	6,022,000	French.... 3,637	3,613,000
Foreign... 27,059	16,812,000	Foreign... 8,737	5,777,000
Total... 33,638	22,834,000	Total... 12,374	9,390,000

RAILWAYS. The railways of France naturally were in a very serious condition after the war and the efforts to secure the rehabilitation of the various systems of both those that suffered actual damage in the invaded region and those where the inevitable effects while less direct were quite serious. This of course was reflected in the financial and operating results which in 1920 for the six important railway systems in France, namely: the Nord; Est; Paris, Lyons & Mediterranean; Paris-Orleans; Midi, and Etat, showed a very disastrous deficit, the average operating ratio for the entire six roads being 135 per cent, that for the State Railway being 153 per cent, which was the largest of the six.

For the year 1920 the gross deficit resulting from operation and charges on capital for all six roads amounted to 3,007,500,000 francs (at a normal rate of exchange \$601,300,000). For the seven years, 1914 to 1920, inclusive, the total gross deficit amounted to 5,574,400,000 francs, or \$1,114,880,000, there having been a loss during each year of that period.

The following table shows the relative increases in numerous items of expense for the year 1920 as compared with the year 1913:

Increase in number of operative locomotives..	5.8	per cent
Increase in power of operative locomotives...	17.5	per cent
Increase in number of freight cars.....	15.5	per cent
Increase in capacity of freight cars.....	22	per cent
Increase in operating ratio.....	116	per cent
Increase in traffic receipts.....	167	per cent
Increase in passenger receipts.....	103	per cent
Increase in operating expenses.....	470	per cent
Increase in cost of wages.....	340	per cent
Increase in number of employees.....	40	per cent

* This does not include receipts from the handling of war traffic.

In round figures the operating expenses of the French railways in 1920 were approximately \$1,380,600,000 (par exchange) as compared with \$225,000,000 in 1913. The enormous increase was due to higher cost of fuel and supplies, increased forces due to shorter hours and to higher wages, as indicated in part above.

The number of railroad employees on the different roads in 1913 and 1920, and the amounts paid in wages are shown below in a striking comparison:

	Number Employees		Wages (millions of dollars)	
	1913	1920	1913	1920
Northern....	53,053	76,632	24.2	105.0
Eastern....	54,259	75,326	22.8	94.0
P. L. M....	81,000	118,577	41.8	160.0
Midi.....	27,489	40,586	8.6	47.8
Orleans....	50,338	72,179	19.0	98.0
State.....	78,805	106,586	32.6	120.2
Totals ..	344,944	489,886	159.0	625.0

Under the term "wages" are included indemnities growing out of the war which were in 1920 incorporated in the sums paid as wages.

There was an increase in wages in 1919 and again in 1920.

The cost of fuel on all the French roads increased from \$35,000,000 in 1913 to \$398,200,000 in 1920. Total cost of operation of individual roads compares as follows (millions of dollars):

	1913	1920
State.....	55.4	275.2
Northern.....	41.2	232.0
Eastern.....	37.8	174.0
P. L. M.....	67.8	366.0
Orleans.....	36.2	238.0
Midi.....	16.6	95.4
Totals.....	255.0	1,380.6

The total length of railway line in France in actual operation, in 1921 was 26,250. This included the Alsace-Lorraine railway system in the north which was being run as a second government railway and was an integral part of the French national system. In addition about 761 miles of line were under construction in 1921 and 688 miles of new lines were projected.

The mileage of the six principal lines in 1921 was as follows:

	Miles
Paris, Lyons, & Mediterranean.....	6,078
State.....	5,599
Paris-Orleans.....	4,844
Est.....	3,071
Midi.....	2,546
Nord.....	2,358

Except the State railway of course, the other systems mentioned were incorporated companies operated under concessions that would expire between 1950 and 1960, at which time the line and equipment would revert to the government under certain conditions of payment while the government had the right of purchase under certain specified conditions. In some cases there was a guarantee against a deficit while for the Nord and the Paris, Lyons, and Mediterranean was temporary, expiring in 1914, while for the Est it was to expire in 1934 and for the Orleans and the Midi it held good through the life of the concession. The Nord had never applied for the government guarantee prior to the war, while the P., L. & M. and the Est have repaid their debts, the former even was ready to share its profits with the government. Special legislation was passed to enable the various lines to operate during the war. At the beginning of hostilities, the financial position of the French railways was as follows: In 1913 three companies had shown a surplus—the P., L. M., \$1,600,000 and the Est and Nord about \$1,400,000 each. Two companies had a deficit—the Paris-Orleans \$3,400,000 and the Midi about \$200,000. The State railway alone showed a deficit of \$13,400,000. One explanation of this last statement was that the management of the State railway had always been much inferior to that of the private companies. When in 1913 the operating ratio of the companies rose from 55 per cent to 61 per cent, that of the State railway reached 85 per cent. Although the traffic conditions of the Orleans railway and the State railway were very similar, the first was able to obtain a net yield per mile of \$5220 and the second \$1628 only. Under these and other circumstances it was not strange that public

opinion had changed and in 1921 was in opposition to any extension of government operation and in some cases the abandonment of government monopolies as unprofitable and impractical was urged.

Obviously such a situation called for heroic measures and after a thorough canvass of the question a Railway Act was passed by the French Parliament which involved a complete reorganization of the French railroads. This provided for the operation of the six main railway lines of France under a single agreement with the government. There was involved first of all the pooling of the net revenues into a common fund, from which any deficits of weaker lines would be paid. This fund would be maintained at a specific figure, after an initial contribution had been made by the state, by periodic advances or reductions of tariffs, as required. The maximum rates would be fixed by the government and all surpluses, after payment of guaranteed dividends, were to pass into a general fund for the benefit of all roads and increases in dividends were only possible by a "management premium" based upon efficiency of operation.

The new law provided a supreme council in which the operating companies, the government, and the public will be represented. This body will serve in a consulting capacity but will formulate the future policies of the railways, which will be binding on all the companies. In all matters of general policy the government would exercise a supervisory control, leaving to the corporations the actual administration and operation of the lines. The state guaranteed operating expenses, bonded indebtedness, and preferred dividends, thus making it easy for the lines to raise the large amount of capital necessary for improvements and extensions.

The Higher Council of Railways, just mentioned, was to be composed of 60 members; 30 representatives chosen by the Minister of Public Works from the nation's most important interests (shipping, industry, etc.), 12 representatives elected by the railroad employees and 18 representatives of the railway administration (2 directors and the general manager from each of the 5 existing private companies, and the president, vice-president, and manager of the state railway).

In addition to the Higher Council there was provided an executive committee or "board of management" consisting simply of the 18 representatives of the railway administration who are members of the Supreme Council—to be the actual managing body, but both the board of management and the Supreme Council of Railways to be under the authority of the Ministry of Public Works.

Furthermore the work of rehabilitation and improvement was not all organization. France long since had realized cost of fuel; detailed plans and estimates had been prepared for the electrification of 5000 miles of railways to be operated as far as possible by the utilization of the water-power resources of the nation in electrifying rail lines. Power stations operated with coal were to be installed in the vicinity of Paris and other large cities to supplement the hydro-electric plants.

Finally a system of through connections was definitely planned, to better the communication with Central Europe, the Near East, and the Orient. A line, passing through Nantes, La

Rochelle, Bordeaux, and Lyons, was to reach Switzerland, Northern Italy, Czecho-Slovakia, the Danubian countries, the Balkans, and Constantinople; also through Switzerland, Vienna, and Budapest. Another line, more to the north, was planned to pass through Harve, Paris, Strassburg, Prague, and Cracow to Kieff, and form the western section of the proposed Eurasian Transcontinental line from the Atlantic to the Pacific.

ARMY. At the beginning of 1921 the total strength of the active forces, including colored troops, was about 660,000 of which 200,000 were in occupation of the Rhinelands. Besides these there were forces in occupation of Syria and Constantinople. The military system is based on the principle of universal compulsory service. In 1914 the period of three years' service in the active army was required, but in November, 1920, the period of eighteen months was proposed. During 1921 the question was under discussion and the military legislation was before Parliament in the closing weeks of the year. According to the report of the army committee of the Chamber, the effectives of the French army numbered 818,000 on October 1, but a large part of the class of 1922 was on leave for the harvest or on indefinite leave, so that the number of men in active service was only about 600,000 at that time. The class of 1922, according to the committee, would probably serve only for eight months, and thus would introduce the reduced period of service that had been accepted. The distribution of the army was as follows: Whites, 591,000; natives of northern Africa, 117,000; natives of other colonies and troops of the foreign legion, 110,000. The military budget for 1922 presented before the Chamber, December 8, showed a reduction of 702,000,000 francs from the budget of 1921, the decrease being due to a reduction of the effectives in Morocco and the Near East, the granting of numerous absences on leave, the suppression of certain allowances which had been made in war time, and also to economies resulting from a lower degree of armament. The budget provided for a total of 701,726 men and 35,953 officers distributed as follows: Metropolitan troops, 414,552 men and 24,055 officers; Colonial troops, 47,898 men and 2909 officers; Morocco, 85,951 men and 2816 officers; the Near East, the Saar Basin and the regions under plebiscite, the Rhine countries, etc., 153,325 men and 6173 officers.

The reduction of military service was discussed in the Senate in the latter part of November; when it was brought out that it would result in a saving of 1,000,000,000 francs a year, half of this coming from the reduced cost of maintaining the troops and the other half from the gain by returning men to productive industries. The bill under discussion fixed the duration of service at two years instead of three and provided that the government might keep men with the colors beyond two years if exceptional circumstances required. The reduction had already begun by the disbanding of certain regiments and the discharge of certain classes of troops. According to the government programme these measures were to be followed by the reduction of the service to 18 months and it would be necessary to vote a new act which, however, was to be preceded by a measure in regard to compulsory physical training. A measure providing for the formation of a

nucleus of provisional soldiers which would be necessary for an army of young troops engaged only for 18 months was submitted on November 26 to the Army Committee of the Chamber. This nucleus would consist of a body of 100,000 men. On December 6 the Chamber voted by 495 to 69 for the calling of the 1922 class in two sections, in May and in November, which would thus introduce the eighteen-month service by 1923. The new military laws were pending at the close of the year. The main features of this legislation were as follows: After May, 1922, the active army would consist of one class and a half. The term of active service for the time being would be eighteen months. The two last classes released from active service would remain at the disposal of the active army. Sixteen and a half classes would form an active reserve and the ten oldest classes would constitute a territorial reserve. The annual contingents were estimated at about 250,000 men. This average would be maintained until the calling of those classes which corresponded to the births during the years of war. It was estimated that the thirty Metropolitan classes nominally numbering about 7,500,000 would be reduced to a total effective of about 5,000,000. The distribution of these 5,000,000 would be as follows: For the home army 400,460; interior zone, 1,250,000 of whom 250,000 were active reserve and 1,000,000 territorial reserve; reserve of forces liable to duty in the interior, 1,250,000 of whom 900,000 were combatants; armies of the first and second lines, 250,000 of whom 1,685,400 were combatants. See **MILITARY PROGRESS.**

NAVY. The following table taken from the *Statesman's Year Book* of 1921 shows the number of each class of vessels in the French fleet including the French share of the German fleet.

	Complete at end of		
	1919	1920	1921
Dreadnaughts.....	7	7	7
Pre-Dreadnaught battleships *.....	13	10	9
Armoured cruisers.....	15	15	15
Light cruisers.....	18	12	13
Dispatch vessels, etc.....	35	35	40
Destroyers.....	80		63 †
Torpedo boats.....	153	100(?)	63
Submarines.....	100(?)	102	49

* Four of these, the *Diderot* class, may be called "Semi-Dreadnaughts."

† In addition are 12 squadron torpedo boats, which in reality are small destroyers.

There was a great reduction in the naval forces after the war; work was discontinued on the super-dreadnaughts; the Mediterranean squadron was reduced; and many other economies were effected. The naval forces are under the direction of the minister of marine who is aided by the chief of staff. The latter is chief of the military cabinet and has charge of all matters pertaining to construction, maintenance, mobilization, and preparation for war. There is a superior council of the navy which serves as an advisory body to the minister. In the central administration there are many branches, including, those of personnel, war material, artillery, finance, submarine defense, hydrography, etc. The navy is recruited, partly by voluntary enlistment, and partly by conscription. The so-called "maritime inscription" provides lists of the male maritime population between the ages of eighteen and fifty years,

and this serves as a basis for the French naval reserve, which has averaged about 114,000 men of whom about 25,500 were usually engaged in the active service. On December 9 the Chamber unanimously adopted a measure providing for 3 light cruisers, 6 destroyers, 12 torpedo boats, and 12 submarines during the period from 1922 to 1925 at a total cost estimated at 755,000,000 francs. It was estimated that future naval budgets would average 1,200,000,000 francs including 50,000,000 francs annually for submarines and coast defense. The present naval budget amounted to about 5 per cent of the total budget as compared with 13 per cent in 1914. See NAVAL PROGRESS.

GOVERNMENT. The president in 1921 was Alexandre Millerand who was elected, Sept. 23, 1920, and the ministry appointed, Jan. 16, 1921, was as follows:

Prime Minister and Minister of Foreign Affairs, A. Briand; Justice, Bonneway; Interior, P. Marraud; War, L. Barthou; Marine, Guist'hau; Finance, P. Doumer; Colonies, Albert Sarraut; Public Instruction and of Fine Arts, L. Bérard; Public Works, Y. Le Troquer; Commerce, L. Diot; Agriculture, Lefebvre du Prey; Labor, Daniel-Vincent; Liberated Territories, L. Loucheur; Hygiene, Assistance, and Social Prevision, Leredu; Pensions, Awards, and War Grants, André Maginot.

HISTORY

FALL OF THE LEYGUES MINISTRY. Opposition had been gathering to the government during the closing weeks of 1920 and it became stronger at the beginning of 1921. The moderate tendency of the Leygues ministry offended the Nationalists and it was attacked in respect to its attitude toward Germany and toward internal dangers including the Bolshevik propaganda and the monarchist attempts. In respect to Germany it was especially blamed on the ground that it had made small progress in enforcing German disarmament and was too lenient in the matter of reparations. The government was weakened also by the bad conditions of the country resulting from industrial depression, unemployment, the high cost of living, and the heavy taxes. The question of confidence was raised January 12 and the vote was strongly against the government, being 463 to 125.

THE BRIAND MINISTRY. After an unsuccessful attempt to form a ministry under M. Péret a new cabinet was chosen under M. Aristide Briand. It was composed of two Senators and thirteen Deputies as follows:

Premier and Minister of Foreign Affairs, M. Briand; Justice, M. Bonnevay; Interior, M. Murrand; Finance, M. Doumer; War, M. Barthou; Navy, M. Guist'hau; Education and Fine Arts, M. Bérard; Public Works, M. Le Troquer; Commerce, M. Dior; Agriculture, M. du Prey; Colonial Minister, M. Sarraut; Labor, M. Daniel-Vincent; Liberated Districts, M. Loucheur; Hygiene, M. Leredu; Pensions, M. Maginot.

The programme included among its features the following: Reduction of expenditures and reorganization of finance; measures for remedying unemployment and industrial depression; reduction on military forces so far as was compatible with the necessary military power of the country; a new treaty with Turkey; refusal to recognize

Soviet Russia; a firm hand with Germany; close friendship with Great Britain. A vote of confidence in response to the prime minister's appeal gave the government a large majority, being 475 to 68.

This was the fourth premiership of M. Briand whose long career in parliament gave proof of a great skill in political management and in debate. Outside France he is best known for his vigorous course in suppression of the railway strike in 1910 by calling the workmen to the colors under the military law. His last ministry succeeded that of M. Viviani at the end of October, 1915, at the darkest period of the war.

THE REPARATION QUESTION. The attitude of France towards the German reparations which throughout the year tended to deprive her of the sympathy of other nations is described in the article WAR OF THE NATIONS. In France itself there was a division among parties on this subject. Not that any of them went so far as leading groups in Great Britain and other countries toward relaxation of the demands on Germany, but that a more moderate spirit was gaining ground in certain quarters. The Briand ministry represented this more moderate tendency and on this account was sharply attacked by the more extreme Nationalists as represented by the former president, M. Poincaré and the former minister, André Tardieu. The Briand ministry in accord with the President M. Millerand were anxious to avoid any break with England while M. Poincaré and his supporters were ready to break with England if necessary and were constantly emphasizing the need of maintaining France's military power as a sanction in her foreign policy. The difference of opinion in respect to the German reparations showed itself in a debate in the Chamber in the middle of March and a vote of confidence being taken the government won by 491 to 66.

There was much discontent with the financial agreements reached by the Allies in respect to German payments including the decisions of the Allied finance ministers and experts who met in Paris, August 16. As a result of these agreements to which the French government reluctantly consented, France received no part of the first \$250,000,000 to be paid by Germany during the year 1921. There was a vast volume of complaint and criticism on this subject. The ground for this discrimination against France was that France and Belgium had already received payments in kind to an amount considerably in excess of the cost of their occupation of the Rhine, while Great Britain had not received as much as she had disbursed, her deficit being from £25,000,000 to £30,000,000. In these calculations, however, the French wished to exclude the coal deliveries from such payments in kind on the ground that the yield of the Saar coal fields could not be immediately realized and they argued that if these were excluded the French would show a deficit of about 150,000,000 gold marks whereas the Reparations Commission had charged up against her an excess of 300,000,000 gold marks. No special provision was made in the Treaty that coal deliveries should be charged against the first \$250,000,000 installment from Germany, but at the Spa conference it had been agreed that coal should be charged against this payment. The financial experts brought out this point and

further declared that France was exporting and re-exporting coal and that notes were in circulation bearing the inscription of the "Mines of the Saar." See the WAR OF THE NATIONS, paragraph, *Wiesbaden Agreement*.

The situation in respect to reparations as outlined in press reports in the autumn was as follows: On September 29 the economic guarantees on the Rhine were abolished. On October 1 the Inter-allied Commission on Guarantees announced in Berlin that the 26 per cent of German exports due for the three months ending July 31 had been covered by deliveries of materials. The total was estimated at 350,000,000 gold marks. The American representative on the Reparations Commission had been asked to arbitrate as to the method in which Germany should repay the sums loaned to Belgium after the German invasion. He ruled that the debt should be reckoned in gold marks at the rate prevailing Nov. 11, 1918. According to Article 232 of the Treaty Germany was required to repay these loans at five per cent interest. They were as follows: France, 2,500,000,000 francs; England, £60,000,000; United States, \$250,000,000. The above decision was satisfactory to France who at the financial conference of Paris in August protested against the loss she would incur if the debts were reckoned at the present rate of exchange. This decision of the American representative, Mr. Roland W. Boyden, would enable France to recover the full value of what she loaned. The most satisfactory settlement to France, however, was that concluded at Wiesbaden which has been summarized in another paragraph.

ATTITUDE TOWARD GERMANY. The line between the two policies in respect to Germany continued as in 1920 and the general attitude of the ruling classes in France may be illustrated by the following arguments of M. Maurice Barrès, apropos of a remark of Lloyd George in August, to the effect that his chief anxiety was lest the Allies were driving Germany too hard and would sow the seed of future conflicts. The French were agreed, according to M. Barrès, in demanding that all the sanctions for the execution of Germany's engagements should be maintained. The committee of foreign affairs of the Chamber had voted for this unanimously and there was no sign of any dissension either in the Senate or among the people at large. It was idle to hope that any concession to Germany would result in gratitude toward the Allies. If Germany had the power, she would immediately seek revenge and try to realize her Pan-German dreams. M. Briand had said there could be no question of abandoning any one of the military or economic sanctions of March and April before the complete execution of the obligations to which they had reference. If M. Briand had not made such a declaration he would have disappeared from public view amid cries of treason. France insisted on the security of her eastern frontier, recalling the words of Marshal Foch, that he would not have slept a single night in peace, if French troops had not been on the Rhine; and this measure was not only for the sake of France, but for the peace of the whole world. The politicians who wished to lift the sanctions of March 7 complained especially of the customs zone of 570 kilometres that the Allies had established between the Rhineland and Germany. It was perhaps advisable to examine the alleged grievances of Germany

in respect to this matter, but there was no doubt that the zone ought to be maintained. The Rhineland was already on the point of adapting themselves to the situation. Moreover, if the imperial government wished to give any color to its claims, it ought first to fulfill its engagements toward the Allies. Germany, in signing the Treaty of Versailles, agreed to execute before May 1, 1921, a certain number of definite engagements. On March 6, 1921, she declared that she would not execute these conditions and would not even make an effort to do so. The result of this refusal would be the crushing of France under the burden of the war. Her trade and commerce would be strangled by taxes and her treasury would be bankrupt. The Allied governments realized this and accordingly on March 7, they took measures for the execution of the sanctions. Later, on May 6, they granted Germany further delays and lightened the conditions, although the Treaty had not been executed and Germany had not fulfilled the obligations which fell due May 1, 1921. Now it was not merely the ruling classes of France that insisted on the enforcement of the conditions laid down on March 7; all France was behind Briand and Millerand. No government would stand that did not take this course. If the government followed the policy that Lloyd George seemed to recommend and relinquished the one means of forcing Germany to execute the terms, there would be a national movement to call parliament together. Certain French newspapers declared in favor of supporting the German government and winning its good will on the ground that that government was trying to do all that it could; but such a policy was unwise in the opinion of the majority. The present German government was on an insecure footing, as had been recognised by the German statesman Rathenau. No one knew what the internal condition of Germany was, or whether it was tending. France had only one guarantee, and that was the custom zone. No other argument would be of any avail. If France followed the criminally stupid policy of letting this weapon slip from her hand, she would return to the floundering state that she had been in throughout the period following the Treaty down to the beginning of March, 1921, when Germany was cynically refusing to fulfill her obligations. The sole gauge that France had for her safety and for the payment of the German obligations was on the Rhine. According to M. Barrès, there was not a Frenchman who did not perceive this. He gave warning against a policy that would merely favor the democratic régime in Germany. He argued that it was unwise to consider the Wirth Ministry as the beginning of German democracy. It was all very well to encourage, as Briand had done, the new German Chancellor and to favor the peaceable elements in Germany, but it was not wise to change the general policy of France toward Germany. The key to the situation was the left bank of the Rhine. M. Barrès, as representative of the school of Nationalist politicians that had always concerned itself with the Rhineland, declared it to be the eternal doctrine of France that there must exist between Prussian Germany and the countries of the west a zone of order and peace and that the Rhine country must forever be a bastion of France against the east, not necessarily a military one, but certainly an intellectual one. The emphasis on this latter

point was probably more exaggerated on account of M. Barrès' well-known chauvinism in this particular than in the general arguments of French publicists; but on the whole the above summary represented the French political opinion as expressed in the newspapers during the greater part of the year.

UPPER SILESIA. The difficulties and ill-temper resulting from the attempts to partition Upper Silesia occasioned much discussion of foreign policies and the following outline from the writings of a French publicist represents fairly well the point of view of the French ruling classes: The so-called Supreme Council which attempted a solution of the problem, consisted of French, Italian, English, and Japanese representatives. Of these only the first three were concerned with the question, which obviously was a purely European one. The United States sent Colonel George Harvey, the American Ambassador to Great Britain, as a spectator of the session. None of the smaller states of Europe were included although several of them were deeply interested in the result. Poland, of course, had no representative. This exclusion of the newly formed states of Europe seemed unfortunate to the French but no one officially made any objection to it. In France it was generally accepted that the right policy for her to pursue was to place herself at the head of these new states and try to assure by means of them a proper balance of power. A small minority in France criticised this policy, saying that after all Czecho-Slovakia, Jugo-Slavia, and Poland were not really nations so much as political experiments. The majority, however, were enthusiastic partisans of these small states and believed in their future. They believed also that Germany wished to organize her power not only by annexing Austria and coming to an understanding with Hungary, but also by breaking up any movement toward unity on the part of these new states. French public opinion favored a policy that would oppose this design. It was argued that just as England had intervened in August, 1914, to save Belgium from Germany, France ought to intervene at the present time on behalf of Central Europe when it was menaced by Germany. All these new states had submitted to the influence of France. While in Austria and Hungary only a few members of the upper classes spoke French, in Roumania and in part of the Banat the teaching of French was compulsory in the schools. The Czecho-Slovak army was entirely organized by a French military commission. It was necessary that these new states should come to an understanding with one another if they were to prosper and in 1921 such an understanding was in progress. It was the policy of France to encourage this and the government was criticised for certain diplomatic mistakes in 1920 which had tended to put obstacles in its way. For example, it had allowed Hungary to hope that the boundaries would be readjusted in her favor, thus causing dissatisfaction among the Roumanians, Serbs, and Czechs. The subject was discussed by representatives of these states, M. Take Jonesco, and M. Benes. The former statesman succeeded in settling all difficulties between Roumania and Serbia and signing a treaty with her. This was the nucleus of the Little Entente which now included Poland. The object of the Little Entente was to maintain the status quo in Central Europe and prevent foreign Powers from

stirring up trouble there. Obviously France ought to assume the leadership of this movement. According to many French publicists, French foreign policy should have as its chief object the development and utilization of the Little Entente. See **WAR OF THE NATIONS.**

FRANCE AND AUSTRIA. On the one hand the Slav and Latin allies of France on the Danube had united in the formation of the Little Alliance, comprising Czecho-Slovakia, Jugo-Slavia, and Roumania. On the other hand, there was a tendency, as had been indicated by the Bohemian statesman, M. Benes, to form a sort of economic union among the Danubian Powers. These movements were entirely in accord with the spirit of the French foreign policy since 1918. In the first place France had a large financial interest, estimated at 15,000,000,000 francs before the war, in the Danubian region. Thus the collapse of the Hapsburg monarchy created a new problem, namely, that of the new Austria where the German-speaking provinces were believed to desire a union with Germany. Austria had been cut off from all relations with the former subjects of the monarchy and deprived of most of the regions which assured her economic existence. According to her Minister of Foreign Affairs, Austria was reduced to her ancient capital of Vienna along with a rocky sterile strip of the Alps; hence the economic necessity of a union with Germany or some other combination. The propaganda of Pan-Germanism had been unceasingly active since the war. Many French writers dwelt on the danger of this accession to the power of Germany, pointing out that it would compensate her for all her losses by the annexation of 80,000 kilometres of territory and 6,000,000 inhabitants. Their publicists pointing to the map showed how such a combination would assure Germany of communication with her allies or dependents in the Near East, while it would isolate France from her Slav friends. In short it would establish a corridor for Germany toward the east while barring the movement of France in that direction. The arguments throughout on the Austrian problem from the French point of view were summed up effectively in a volume published in 1921 by M. Marcel Dunan, well known for his work's on Central Europe and the Balkans.

ALSACE. The French charged the Germans during the year with a systematic endeavor to misrepresent conditions in Alsace. They gave it out that although Germany had lost the land, they still retained the affections of the inhabitants—that in short the country was at heart German. This idea was expressed in many of the leading German periodicals. It was said that although the German administration had not been able to convince the Alsations of their essential German character, the Alsations had now learned this from the few weeks of French administration. Many articles appeared in the German press in regard to the disappointment of the Alsations and their regrets at the change. According to the French it was a campaign of exaggeration and even downright lies. The pretense that the Germans alone had been able to understand the Alsation character was widely ridiculed in France. The religious question was also agitated in the German press where the attempt was made to give the impression that through fear of the introduction of the law of separation, all believers

of whatever confession were inclined toward neutrality. For example, at Strasburg an assembly was held at the end of May of the party known as the Popular Republican Union to consider the question of parochial schools. It was attended by some 4000 persons from all parts of Alsace. The language spoken was Alsatian, for although the school children were rapidly acquiring French, it had not yet come generally into use, but as the dialects of the north and south are different a committee had proposed that the speakers should deliver their principal speeches in German. Thereupon occurred a remarkable demonstration against this proposal, everyone exclaiming that they were not Germans and did not wish to speak the German language.

THE RUSSIAN FOREIGN DEBT. The note of the Russian foreign office in respect to the recognition of the Russian foreign debt incurred prior to the war was followed by a note from the French Foreign Office to the British embassy pointing out that the Russian offer rested simply on universal right and did not present any chance for bargaining; that it made no mention of the obligations on the part of Russian or companies that had the support of the Russian government but whose property had been destroyed at the Soviets; that the acceptance of these obligations by the Soviet government indicated its abandonment of its entire propaganda and its policy of interfering in the internal affairs of other countries; if these conditions were fulfilled the economic restoration of Russia might follow; and in case of their fulfillment the French Republic would consider the possibility of negotiating with the Russian government.

POLITICS OF THE RIGHT. Leading French politicians and publicists not only admitted the charge that France was the most reactionary country of Europe but expressed their gratification at this condition and even said that the country had no worse enemies throughout the world than those elements that were known as Liberal. As to extreme radicalism it made no important demonstration. The government had already in 1920 shown a firm hand against all radical labor organizations. Two representatives of the British Council of Labor who were sent to France to confer with French representatives were expelled by the government. The French Confederation of Labor which had expressed sympathy for Soviet Russia in October, 1920, and denounced the French government for its reactionary attitude was directly attacked by the government, and a court decision on Jan. 13, 1921, ordered its dissolution on account of its responsibility for the railroad strike of May, 1920, charging it with an endeavor to set up the Soviet system in France. It was argued against it that by the terms of its incorporation it was simply to study and defend the interests of the working classes whereas for some time past it had preached social revolution and incited disorders including a mutiny in the navy, strikes, etc., and at the same time it sought to influence the government's foreign policy. This court decision against the Confederation was ignored by that body.

As indicated in foregoing paragraphs and under **WAR OF THE NATIONS** the French government continued to stand throughout the year in the way of all compromise in respect to Germany and of progress toward the adjustment of Euro-

pean affairs on a permanently peaceful basis, that is to say, her attitude was thus defined in the other countries of the Allies, as well as in apparently impartial quarters. The defense of this position on the part of the leading members of the ruling class and the official press has been outlined in other paragraphs. Every act of the French government, from its course in respect to Poland down to and including its attitude toward limitation of armament at the Washington Conference, was condemned by the Liberal press as self-interested and even imperialistic, and was defended by the leading French papers and publicists, including the most eminent historians and literary men of France, as absolutely justified, and in fact as not being sufficiently firm on behalf of French interests. It appeared from the quotations from French sources in British and American papers that French opinion was practically solid in this respect and that the French government was thoroughly representative of the nation. The *National bloc* which had triumphed at the election of Nov. 16, 1919, appeared to be still firmly in control. Extreme Nationalists, such as M. Poincaré, M. Tardieu, the great generals of the war, and the leaders most suspicious of Germany and jealous of England, were everywhere in evidence. Nevertheless, there were indications of a growth of independent opinion in France and an attempt to withstand the wave of nationalistic feeling and reactionary thought. Hardly any account of these elements was taken in the British and American press. In the United States, French opinion was almost always the opinion of the groups of the Right, at present in control of the situation, and are represented by the best known French papers and the most conspicuous figures of the moment. The articles of M. Poincaré in the *Revue de Deux Mondes* and the dispatches to the *Times*, for example, were widely read, while the French critics of these views were not heard from. Thus France was represented in the United States exclusively by the element that apparently interpreted every act of Germany as prompted by revenge, every act of the British government as due to imperialistic motives, and all criticism of present French policy as animated by pro-Germanism, Bolshevism, or national selfishness, no matter in what quarter it appeared. Even the literary men most familiar to the American public were representatives of the conventional and accepted older group who made no concessions to new tendencies of the times—such men, for example, as M. Barrès, P. Bourget, A. Capus, L. Madelin, and various other members of the French Academy; while the class from which France chose her leading representatives to America was that of the generals of the war, sending finally, Marshal Foch who believed that the salvation of Europe could only be secured by giving France a permanent grip on the Rhine. These facts accounted in some measure for the belief in the United States that France was solidly in favor of reaction and tending rapidly toward militarism. There were, however, many indications both in the political and literary world of Liberal opposition; and the quotations from the French press which gave the impression in the United States of a strange and monotonous uniformity was by no means representative of actual conditions. Aside from extreme radical publications, such as, *Clarté*, the revolutionary

organ founded by M. Barbusse and supported by Anatole France, there were newspapers and weeklies in Paris and in the provinces with large circulations which were fighting constantly for the union of the parties of the Left against the National bloc. There were movements for a coalition of all Liberal elements against the policy of the present ruling element. Many of the intellectuals were enrolled in them, and they were headed by politicians of Liberal tendency, such as, MM. Doumergue, Herriot, Boncour, Painlevé, etc. The French policy toward Russia was sharply attacked, and a readiness to reconcile France with Germany was manifested. In internal affairs it was asserted that the rich were spared while the poor were overburdened. From this class of newspapers and other periodicals there was but little quotation in the American press. Nevertheless, there was no sign that the majority in France was discontented with the government's policy. On the contrary, toward the close of the year there were signs that M. Briand who was condemned in Liberal quarters in other countries as too uncompromising was embarrassed by the elements in the National bloc who considered him too much inclined to compromise. At the close of the year when the conference at Cannes was approaching there were signs that the party represented by M. Poincaré was gaining in strength and would block all such efforts as M. Briand was willing to make to remove France from her position of isolation among her former allies, characterizing his policy as feeble, and as unduly submissive to the foreigner.

THE OCCUPATION OF THE RHINELANDS. In December a Deputy raised the question in the Chamber as to the reasons that had led the Allied governments to consent to the nomination of a new German high commissioner in Rhenania, whose attitude immediately became inconsistent with the Treaty and with the interest of France. Before this the Allied high commissioner of the Rhine territories had received representatives of the economic interests of the occupied regions, including delegates from twenty chambers of commerce, twenty chambers of agriculture, the chief commercial private associations, the trade unions, farmers' associations, etc. At the meetings of the high commission many questions pertaining to economic conditions of the occupied region, and social problems, including the questions of manual labor, etc., were studied. It was reported that there was comparatively little unemployment in the region, and that the question of food supply was not serious. These sessions were held in the presence of the high commissioners of France, Belgium, and Great Britain; the general in command of the American troops of occupation; and Prince Hatzfeld Wildenburg, Imperial Commissioner of Germany.

M. BRIAND AND THE DISARMAMENT CONFERENCE. The proposal that M. Briand should attend the conference at Washington raised in France somewhat the same question as had been raised in the United States on the eve of President Wilson's departure for the Peace Conference. M. Briand took the stand that he ought to go in person but insisted that he must have the assurance of complete approval from Parliament. On October 21, the subject came up for discussion in the Chamber. In reply to interpellations he

declared he would not go if he received a doubtful expression of confidence or a narrow majority. He met the objections of the various critics of the government during several important sessions of the Chamber. The main points in his replies were as follows: Declaring that the programme of the government was a programme of both internal and external peace, he said that it had applied itself for more than a year to the enforcement of the Treaty. It must not be forgotten that in so doing there had been the necessity of coöperation with the Allies. The danger of any other course was obvious for it would have left France in a position of isolation. He had always maintained that the Treaty was the work of the Allies in common and that solidarity among the Allies must be retained. The claim of France had been fixed, but Germany refused to recognize the Treaty and had not carried out her obligations under it. The Treaty established certain guarantees and penalties and France had undertaken to apply them. In London the French government had maintained that as a measure to force the Germans to respect their obligations she had a right to seize the cities of Ruhrort, Düsseldorf, and Duisburg, but her Allies opposed and it was only after long discussion that she had accomplished her end. At the second conference the government notified the Allies that in case of German resistance France would do what seemed to be her duty and a rupture was narrowly averted. The government accordingly had carried its point in that respect. After the occupation of the German territory the German government had changed its attitude and the party that favored loyalty to the terms of the Treaty was placed in power. The Chancellor then declared that it was necessary for Germany to submit and to pay. "And now," said M. Briand, "I ask you what we ought to have done? We said we were going to do what we decided to do. Our Allies went away without warning. The government stood face to face with the enemy. France was strong in a military sense but if she acted alone there was great danger. In former times France found herself in a position of isolation and the result was her defeat in the Franco-Prussian war. When a man finds the fate of his country in his hands and sees that forty years of the Republic have given it friendships and alliances, has he the right to take a course that will run the risk of leaving his country without friends?" As to the disarmament of Germany the Prime Minister declared that the situation had improved. The government had certainly not been indifferent to that necessity. Of the 4000 cannon declared in March, 1920, there remained in 1921, 600 pieces which were delivered and destroyed. Also 800 cannon on the coast of the North sea had been destroyed. By September 10 the material of war destroyed was as follows: Cannon, 32,800; minenwerfer, 11,000; machine guns, 84,000; hand weapons, 4,250,000; loaded shells, 35,000,000; unloaded shells, 2,000,000; carriages, 55,000; traveling kitchens, 11,000. The old police force was disarmed and although the German government afterwards created a central police force the Control Commission required that it should be disbanded and according to last accounts this was being done. The great fortress of Kiel had been demolished. As to Upper Silesia the French government had defended its policy. Agreement

in respect to it had been impossible. Under the Treaty the Supreme Council had turned it over to the League of Nations and this course was condemned in advance by many critics. Meanwhile of the two great arsenals of Germany, Essen was within the range of French cannon and the arsenal in Upper Silesia had ceased to be in Germany. When such results were obtained without bloodshed it was not fair to blame the government. In respect to the Near East it had been extremely painful for France after a long war to endure these conflicts on the eastern frontier but that difficulty was now removed and he was able to announce that the Assembly of Angora had agreed upon an arrangement in respect to the frontier between Syria and Cilicia. Germany had come to terms in respect to the first instalment of the reparations. It must be remembered that the war had burdened the country and that if the mark had retained its normal value Germany would be able to pay her debts. But she was obliged to pay in gold marks or rather in foreign securities having an equivalent value and the purchase of these securities in turn lowered the value of the mark. This fall of the mark favored the great German industries at the expense of their own government. Controllers of these industries hoped to bring about the bankruptcy of Germany and nullify Article 234 of the Treaty, but Germany as a whole admitted the responsibility for her debt. In any case the creditor must not take any measures that would make it impossible for the debtor to pay. M. Loucheur had been reproached for having made the Wiesbaden arrangement with Herr Rathenau, but it should be understood that the government was behind M. Loucheur and strongly favored this new method of payment. As to the Rhine-lands if there had been substituted for the Prussian administration, an administration by the natives, excellent results would have followed. The French soldiers of occupation had deserved all praise. When the order of occupation was issued the allies of France were apprehensive and the propaganda of the Germans had stirred up great alarm. The three cities of Germany were occupied and no serious incidents had developed as a result. At this point in the speech M. Barrès interrupted with a remark that he did not blame the government for that but blamed it for removing the economic sanctions. M. Briand replied that the government had resorted to another method. England had proposed a tax of 50 per cent on exports. The French government after receiving the reports of its agents decided on another means of obtaining the money, namely, by setting up a customs zone. The result of this was unfortunate. There seemed to be a sort of paralysis in the region and the allies of France protested against this policy. The French government had therefore withdrawn it and had, on the advice of experts, set up a commission which was still in operation and which was keeping the government well informed on the subject. The French government believed that without detriment to its own interests it could aid Germany in keeping her engagements. While the government had yielded to the Allies in respect to the economic sanctions it had remained firm in the matter of the military sanctions which it had retained in spite of the opposition of the Allies. It was obviously to French interests to

lend the support of France to the party in Germany that was peaceful in its aims and endeavoring to be loyal to the nation's obligations. That was why the government had done its best to strengthen the cabinet of Chancellor Wirth. France being exposed on one side to Germany and the other to England must pursue a policy of alliances and avoid the danger of isolation. She could not take any attitude toward Germany that would prevent her living on friendly terms with England. A willingness to negotiate with Germany was necessary to the good will of England. Serious difficulties had arisen and were likely to arise. A part of the German parliament had protested against the partition of Upper Silesia but the most serious difficulties of all were financial. M. Briand described explicitly the situation. He said that in the discussions of the Supreme Council there were times when an act of imprudence or oversight would have dangerously compromised the relations between the Powers and the responsibility of the French representatives in these circumstances was most serious. Crises arose in which it was necessary to choose between the just claims of France and the continuance of her alliances. In these crises M. Briand had chosen the latter, thinking it better that the country should be disappointed in respect to a portion of its claims than that it should be condemned to political isolation. But he said he had no intention of abandoning the guarantees in respect to Germany, for while he had confidence in Chancellor Wirth the latter might at any time be overthrown. As to the Washington Conference he said it was the first great international conference in the United States and France must not be absent from it. The Pacific problem concerned France as well as other countries and it was the duty of France to present her own case and not submit to being misrepresented by her enemies. In respect to internal policy he declared that social peace was necessary to the recovery of the country and that the government would pursue a policy of national harmony.

It was predicted in certain quarters down to the last minute that the Prime Minister would be defeated, but he succeeded in rallying to his support all the moderate elements in the Chamber, after his address. On the final vote, out of the 593 members, he received 338 ballots, the vote against the government being 172. The Senate gave the Prime Minister a still larger majority in proportion, the vote of confidence on October 27 being 30 to 9. M. Briand on this occasion pointed to the success of his ministry in respect to the German payment of indemnity and gave full credit to the German Chancellor, Wirth, for his loyalty in keeping his promise. He declared the best guarantee of peace in Europe was close agreement among the Allies. As to the Conference there were two questions involved, namely, equilibrium in the Pacific and disarmament. France would not take a combative attitude but would go among friends in the interests of the world peace.

Although M. Briand shortly before he left for the United States to attend the Disarmament Conference had declared in Parliament that Germany was loyal to her engagements in respect to disarmament and had done all that was demanded of her, thus removing the danger of war, he, nevertheless, took as the central argument in

his main speech at Washington the danger in which France found herself from German military aggression in the future. In France there seemed to be a moderate element that regarded the fears of German aggression as exaggerated, but, so far as the leading newspapers were concerned and some of the most conspicuous public men, the nightmare of German conquest seemed to be constantly present. After M. Briand's return there was an excited discussion of this subject in the newspapers à propos of a suggestion that the British government had in mind the offer of a treaty with France that would guarantee her against attack and would, therefore, admit of a reduction of her military forces. Newspapers thereupon pointed to the great increase in German population as indicating that in the future the German people would necessarily seek conquests elsewhere, and asked how a mere paper guarantee could suffice as a protection to France. France, they said, must in her own interest and that of her allies keep a large enough force to repel any aggression, and to maintain the situation created by the Treaty, and this necessity would never disappear until a solidly established international force was able to keep the peace of Europe, as it had been constituted under the Treaty. At that time the army laws were on the point of being discussed in the Chamber. These provisions were apparently based on the possibility of a German attack and provided for reserves that in time of war would supply an available trained force of over five million men. See section on *Army*, above.

On his return from Washington the Prime Minister, in response to the demand of the Senate that he make a public statement as to the position of France in relation to the Disarmament Conference and in respect to German reparations, declared that he had explained to the American people the danger in which France stood and had denounced the campaign that had been carried on in the press against her; that France was in a solid position in respect to the reparations and would insist upon the payment of the sums decided upon by the Reparation Commission; also that the German government had been notified that it must put its finances in such order as would permit of the payment of the reparations. A vote of confidence was taken December 6 which in the Chamber gave the government 460 votes against 100, and in the Senate, 249 against 12.

On December 27 the ministry encountered an embarrassment as the result of M. Berthelot's resignation. The latter had incurred reproach on account of his relations with his brother who was involved in the affairs of the Industrial Bank of China. The correspondence while reflecting no personal discredit on the minister was regarded as implying improper relations on the part of a government official. The opposition was disposed to attack the Briand ministry on the strength of this incident.

THE LONDON CONFERENCE IN DECEMBER. The French point of view in respect to the two principal subjects discussed by the Conference of Prime Ministers in London in December, may be summarized as follows: As to the German payment in kind the French declared that their policy was based simply on the joint interests of France and her Allies. The French treasury would receive no part of these payments which were absorbed by the Belgium priority or rather by certain privileged

creditors in Belgium. The amount of these credits had not been officially given out but were considerable and according to French estimates came to about 2,000,000,000 gold marks. This sum was burdened by an English credit of about 150,000,000 gold marks and an American credit of from 550,000,000 to 600,000,000 gold marks. These debts to England and the United States were to be discharged in pro rata payments in accordance with their respective amounts. France had no desire to embarrass in any way the affairs of her Allies but the situation seemed unfair to France as well as to Belgium. It appeared that England would abandon her right to the privilege that she possessed in respect to the Belgian priority if the United States would do so, but there seemed to be no prospect of that. The second subject discussed at the conference was the question of the German financial situation and its relation to Germany's ability to pay her debt. The French argued that the German government was making no effort to put its house in order and was constantly taking a tone of despair in its public announcements. The latest address of Chancellor Wirth had compared the reparations to a pot without a bottom and indicated that the country was inevitably tending toward bankruptcy. The government did nothing to check the wasteful financial policy of parliament. According to the German press the ministry simply abandoned their positions one after another and allowed all control to fall from their hands. According to the French critics Germany was slipping into bankruptcy partly through the incompetence or inability of her leaders and partly through their ill-will. The Germans accused France of wishing to interfere in German finance as in the past western Europe had interfered in the finances of Turkey, that is to say, favored a policy of foreign control. To this the French replied that they had no such desire but that Germany in not making any effort to straighten out her own affairs naturally invited foreign interference. Many remedies had been suggested by the Allies, the French proposals being of a radical character, that were not likely to receive the assent of the British government. The French critics pointed to certain abuses that aggravated the financial situation of Germany. In the first place there was the monetary situation. Everybody agreed that something ought to be done to stabilize the market but there seemed to be no chance of accomplishing anything to this end so long as the books of the Imperial Bank presented such aspects as these, for example: On October 31, the accounts of the bank included 98,700,000,000 treasury bonds and 880,000,000 of commercial paper. On November 30 they comprised 100,552,000,000 of treasury bonds and 1,109,000,000 of commercial paper. In these circumstances the Imperial Bank evidently did not possess the necessary independence to refuse the government the absurd sums the latter demanded when it discontinued its treasury bonds. So long as the government could draw from the Imperial Bank as many billions as it chose the public administration would continue its wasteful policy. The government naturally took the easiest course and issued paper currency. Therefore it was argued by certain French writers that the Imperial Bank must be made more independent and it was suggested to this end that an international arrangement should be made involving a competent

supervision of the Bank's affairs by the Allies and a control over the situation with a view to placing the Bank in a position to regulate the foreign securities of German citizens. The Imperial Bank could never stabilize the market unless it held an important reserve of securities. No German investment in foreign securities or in foreign money ought to be permitted without the Bank's having the means of verifying its existence and of disposing of it if necessary in return for a fair indemnity in marks. The budget included apparently three classes of unduly burdensome expenses: (1) Military expenses either admitted or concealed; (2) substitutions designed, for example, to lower artificially the cost of bread thus constituting an indirect premium to German industry. This device had already been exposed and denounced by Sir Robert Horne in an address at Manchester; (3) expenses which bore the character of subventions to the different German states—in reality, investments. For the current year a credit of about 17,000,000,000 marks was applied to the payment of the floating debt that the several German states in their capacity as owners of railway had contracted for their railways before the central government acquired them. It was pointed out by the French that these sacrifices should not be borne by the budget of the country as a whole inasmuch as the German states were less burdened than the central government since they did not have to pay the reparations. To be sure the Prussian budget showed a deficit of 933,000,000 marks for the coming year, but this contained items far less urgent than the reparations which the central government had to pay. Another question raised by the French was whether the central government ought to lay out billions on the reconstruction of the German merchant marine. Vast sums had been advanced to German shipbuilders and it was reported that all the shipyards in Germany were working at their full capacity.

FRANCO-TURKISH TREATY. As noted under **WAR OF THE NATIONS** the treaty between France and the Angora government occasioned criticism in England and caused friction between the two countries. According to the French point of view, there was no justification of the British criticism and the address of Lord Curzon on the subject caused great offense in France. The treaty of Sèvres signed, August 10, 1920, by the Allied Powers and Turkey put an end to the war in the Near East. From that time on, according to the French view, the London agreement of Sept. 4, 1914, in which the Allies bound themselves not to make a separate peace was no longer in effect, and each Power was free to pursue its own course. In the war between Greece and Turkey France had a right to take whichever side she chose. According to the English view she was bound by her entente with England. That was the main point of disagreement. The French argued that while they desired to maintain the English alliance, they must reserve complete equality in the Near East. It was England who had been the first to claim freedom of action in 1920, in spite of the formal expressed objections of France. England had recognized the anti-French government of Feisal. It was England also who had carried into the affairs of the East the competition in respect to petroleum; who had imposed on Persia a treaty reducing that

country to vassalage; who had concluded with Turkey before the Treaty of Sèvres the separate and secret treaty of Sept. 2, 1919, which contained clauses in respect to colonization and which implied the loss of Turkish rights; and it was England who had encouraged Greece in her recent course, beginning with the restoration of Constantine to the throne and continuing with the invasion of Turkey. This was the French side of the case as expressed ordinarily in the newspapers. To Lord Curzon's protest against the treaty with Kemal, they replied that Kemal's authority rested on a sounder basis than that of Tewfik Pasha, for while the latter had behind him the Sultan's sovereignty, the former had behind him the sovereignty of the National Assembly. Moreover, the real power centred in the Angora government whose agents to all appearances even controlled the government of Constantinople. As to the complaint of Lloyd George that the French had treated with the revolutionary leader Kemal, they replied that Lloyd George had himself treated with the revolutionary leader Lenin. The French hunting for the motive of the British policy suggested that the British government had hoped to mediate between the Greeks and the Turks, and the course that France had taken opened the way of mediation to France instead, because France was at peace with both belligerents, while Great Britain would not be acceptable as a mediator to Turkey. Another motive attributed to the British was the fear that the strengthening of Kemal's power would enable him to interfere in Mesopotamia, and brush aside the new kingdom of Feisal. French newspaper articles assumed a triumphant tone on the subject, saying that in the Turko-Greek war, England had bet on the wrong horse and would have to abandon the Greeks sooner or later; that she must realize that Turkey sought only the right to live, and that the Turks were essentially peaceful. The Turks had said, let the Greek army retire from Anatolia and peace would be restored in the Near East. The treaty of Kars had quieted the Caucasus and the three republics in that region had respected the guarantee of their independence, and were satisfied with their frontiers. The treaty of Angora had put an end to hostilities on the Cilician front. The only disturbed region now was the seat of the Turko-Greek war, and this war must be brought to an end. The French reminded the British of Lloyd George's promise that Turkey should not be robbed of her rich and prosperous region of Thrace or the vilayet of Smyrna.

COMMERCIAL RELATIONS. The *modus vivendi* with Spain expired on December 10, owing to the failure of negotiations for an amicable agreement. France is applying to Spanish imports its general tariff plus a special *ad valorem* surcharge on certain principal articles and also an additional surcharge to compensate the difference in currency values. On November 10 the French Government also denounced the commercial agreement with Italy, denunciation to be effective Feb. 1, 1922. See above under *Commerce*.

OTHER EVENTS. Elections to the Senate held, January 9, resulted in a gain of three seats by the parties of the Left. The successful candidates were distributed among the parties as follows: Republicans, 39; Radicals, and Radical Socialists, 43; Republican Socialists, 11; Conserva-

tives, 3. On February 15 the French Confederation of Labor defeated the Bolshevik programme by a vote of 243 to 224. The celebrated case of the alleged anarchists, Sacco and Vanzetti, under trial in the State of Massachusetts caused agitation among radical groups in France as in other countries. In Paris there were demonstrations against the American Ambassador, Mr. Herrick, as a protest against the conviction of the anarchists, and a bomb exploded at the embassy, but without fatal result. At the same time bomb-throwing in Paris resulted in the injury of about 20 persons.

A highly sensational trial, the reports of which were read all over the world, was that of Henri Landru, known in the press as "Bluebeard," accused of killing ten women and a boy. The crimes covered a period of several years during the war and afterwards, and were marked by astonishing powers of deception and skill in concealing evidences of crime, even the relatives and friends of the many victims being for a long time without suspicion. The details of the affair are too numerous and minute for repetition. The main feature of the trial was the conduct of the case by the accused himself, who displayed much cleverness and wit in the early sittings. No proof was found that any one of the victims was actually killed, and the defense rested on this fact. Nevertheless, on the grounds of wholly circumstantial evidence, strengthened by the fact that a long search had failed to bring out any sign that any of the victims were still living, he was found guilty, November 30, and sentenced to the guillotine.

FRANCE, ANATOLE. See NOBEL PRIZE.

FRATERNAL INSURANCE. See INSURANCE.

FREEDMAN, JOHN JOSEPH. See NECROLOGY.

FRENCH. See PHILOLOGY, MODERN.

FRENCH, FRANCIS HENRY. Army officer, died, March 10. He was born in Indiana, Sept. 27, 1857; and graduated at the United States Military Academy in 1879. He was appointed captain, Nov. 26, 1894; and major, Feb. 28, 1901. He served on the Mexican border, 1916-17, having risen to the rank of brigadier general, Dec. 30, 1916; and major general, August 5, 1917. He commanded Camp Jackson, S. C., in 1917 and retired, March 27, 1918.

FRENCH CONGO. See FRENCH EQUATORIAL AFRICA.

FRENCH EQUATORIAL AFRICA (*formerly FRENCH CONGO*). A French colony situated in Equatorial Africa with Kamerun on the northwest, Belgian Congo on the southeast, and the Atlantic ocean on the west. It extends northward to the Bahrel-Ghazal and Lake Chad, and is bounded in the interior by the Congo and Ubangi rivers. Area, including the Kamerun territories, about 1,037,131 square miles, with a population estimated in 1915 at about 9,000,000. It comprises the colonies of Gabun, Middle Congo, Ubangi-Shari, Chad, and Kamerun. The resources, which are altogether undeveloped include: Wild rubber, palm oil, coffee, and farm animals. No recent figures for production or commerce were available. In 1917 the exports were 27,732,410 francs; and the imports, 9,575,000 francs. The chief ports are Port Gentil and Libreville. There is telegraphic and wireless connection with Loango. There is a budget for the region as a whole, and separate budgets for each colony. The general budget in 1920 called for an expenditure of 7,600,000 francs. Of the budgets for the separate colonies that of Kamerun

was the largest, being 10,283,000 francs, each of the others being between three and four million francs. In 1910 French Congo was divided into the districts of Gabun, Middle Congo, Ubangi-Shari, and Chad. A portion of French Congo was ceded by France to Germany in 1911 in return for certain territory in Kamerun and German recognition of French protectorate of Morocco, but, after the war France regained this region as well as the German portion of Kamerun. The colony is under the governor of Equatorial Africa, and each of the divisions has a lieutenant-governor who is aided by an administrative council. Governor-general at the beginning of 1921, J. Augagneur.

FRENCH ESTABLISHMENTS IN OCEANIA. See OCEANIA.

FRENCH GUIANA (CAYENNE). A French colony and penal settlement on the northeastern coast of South America. Area, 34,069 square miles; population in 1918, 26,325; unofficial estimate in 1919, 49,231. Capital, and only seaport, Cayenne, with a population in 1919 of 13,619. At the beginning of 1919 there were 24 primary schools with about 2000 pupils. The chief products are rice, corn, cocoa, coffee, manioc, sugar cane, indigo, tobacco, and gutta percha, and the chief industry is gold-mining of which the production in 1918 was 80,477 oz. No later figures for production or trade were available than those given in the preceding YEAR BOOK. The penal population at the beginning of 1919 numbered 6036 of whom 2179 had been freed. The colony is under a governor assisted by a privy council of five members and a council-general of sixteen members and is represented by one deputy in the French parliament.

FRENCH GUINEA. A French colony of West Africa lying on the coast between Portuguese Guinea and the British colony of Sierra Leone. Area about 95,218 square miles; population in 1920, 1,851,200 including 1200 Europeans, most of whom were French. Capital, Konakry with a population of 6623. The chief commercial centre is Kankan. Other towns: Boké, Kindia, and Dubreka. The chief product and export is rubber. Other products are palm oil and palm nuts, millet, peanuts, rice, gum, and coffee. In 1919 the cattle numbered 420,000 and sheep, 102,000. Gold is worked to some extent. There is a railway from Konakry on the coast to Kourassa on the Niger and thence to Kankan, a distance of 776 miles. Jonakry has regular steamship service by French and English companies. Vessels entered in 1919, 169 of 288,614 tons; cleared, 173, of 292,780 tons. In 1920 the budget balanced at 13,124,800 francs. The colony is under the Governor-general of French West Africa.

FRENCH INDIA. The territory included in the French dependencies in India with an area of about 196 square miles and a population of 268,499. The provinces with their populations in 1919 are as follows: Pondicherry, 166,023; Karikal, 55,201; Chandernagar, 26,490; Mahé, 11,111; Yanam, 5043; total 263,868. The government maintained in 1919, 61 primary schools and three colleges with 312 teachers and 9491 pupils. The chief products are rice, sugar, cotton, cacao, coffee, manioc, and peanuts. Imports to the three ports in 1919, 22,529,747 francs; exports, 26,792,148 francs. Vessels entered and cleared

at the three ports in 1919, 159 of 36,856,198 kilos. Budget of 1920 balanced at 2,266,420 rupees. The colonies are under a governor, whose seat is at Pondicherry and under an elective general council and are represented in the French parliament by one senator and one deputy.

FRENCH INDO-CHINA. The region in southeastern Asia belonging to France and consisting of the following five states with their area and population: Annam, 52,100 square miles; population, (1919) 5,592,000; Cambodia, 45,000 square miles; population (1919) 2,000,000; Cochin-China, 20,000 square miles; population (1919), 3,452,248; Laos, 98,000 square miles; population (1914), 640,877; Tongking, 46,400 square miles; population (1919), 6,470,250; also the leased territory of Kwang-Chau-Wan, 190 square miles; population, about 168,000. Total area of French Indo-China, about 256,000 square miles; total population in 1914, about 16,990,229 of whom about 23,700 were Europeans exclusive of the military. Higher estimates in 1921 placed total area at about 280,000 sq. mi. and total population at about 20,000,000. About three-fourths of the people are Annamites. Capital, Hanoi in Tongking with a population of 109,500 in 1919. Other towns: Cholon, 191,665; Bindinh, 75,000; Saigon, 72,000; Penom-Penh, 54,621; Hué, 65,000; Vien-Tiane and Haifong, 27,000 each.

The economic divisions of the country include first the territory which depends on Saigon as its market comprising Cambodia, Cochin-China, the southern part of Laos and the southern part of Annam which is almost exclusively an agricultural region and is one of the greatest rice-producing tracts in the world. In addition it has fisheries on the coast and in the lakes. In the second place there is the region dependent upon Haifong comprising Tongking and the northern part of Annam, where the chief interests are agricultural. Finally there is the region of central Annam depending for its outlet on the port of Tourane, where the main exports have been cinnamon, sugar, and tea. The mineral products of Indo-China include coal, lignite, tin, antimony, wolfram and zinc. The territory is under a governor-general who is assisted by a secretary-general, and at the head of each state is a so-called resident-superior except for Cochin-China which is directly under the central government. For the whole of Indo-China there is a superior council which maintains a permanent commission.

THE JAPANESE QUESTION. Certain French publicists made much of a "Japanese peril" to French interests in the Far East. They declared there was no doubt that Japan was animated by a truly Prussian spirit which pervaded not only the military caste, but the financial and intellectual classes; and that every Japanese secretly desired to take the place of France in colonizing Indo-China. They were all looking to the Southern Pacific where a booty lay ready to their hand. They were coveting the Philippines, the Malay Archipelago, Indo-China and in fact all important points in the Pacific ocean. There was no open declaration of these aims but they intended to take advantage of every circumstance to realize them. Japan knew that France was trying to develop the resources of her great possessions overseas and looked to a close coöperation with the United States. She turned to her own financiers who understood better than the Americans

the great undeveloped wealth of the French colonies and from them she had received the offer of an advance which, if she accepted it, would render American interests decidedly insecure in the Far East and would threaten their hold on the Philippines. Japan wished to be the leader of the yellow race and was watching the European situation in the hope of attaining that object. Some day in the future she would not hesitate to unmask her designs on the Pacific. Her justification was the right to provide for the existence of her race which could not survive if confined to its narrow territory. For the new partition in Europe, the western countries were invoking the rights of nations. Japan appealed to the same right and argued that they were in a better position in that respect because after all they were Asiatics and if the principle of America for Americans and Europe for the Europeans was legitimate, why not the principle of Asia for the Asiatics?

FRENCH IVORY COAST. See **IVORY COAST.**

FRENCH LANGUAGE AND DIALECTS. See **PHILOLOGY, MODERN.**

FRENCH LITERATURE. The impression that writers of books and plays are still groping after the great event of the war, is even stronger than last year and the year before. It is not strange that it should be so. The more one realizes the changes brought about in the past, and the changes to be brought about in the future, the more views must be widely differing from each other. Thus some will insist on forgetting the war, some on thinking about it; some decide that the best is to lean on the past, some to start all afresh; some indulge in pessimism, some in hope; some cultivate old time realism, and some give themselves up to creative imagination.

WAR LITERATURE. The war is still omnipresent in the minds of many poets. Jean de Suberville won the Grand Prix de Poésie Française of the French Academy for his *Le Dieu Inconnu*. It is a dialogue between the Domes des Invalides under which sleeps the leader of the "grande armée", Napoleon, and the Arc de l'Etoile which rises above the "soldat inconnu" of the Great War; the latter says to the first

Toi tu n'es qu'une tombe, et je suis un auel.

Fr. Proché reprints his famous poem *L'Arrêt sur la Marne*, together with other war poems in *Commandements du Destin*. Duhamel sends out 25 *Élégies*, little jewels echoing the note of the *Vies des Martyrs*. Barbusse, who reëdits *Pleureuses*, preface Rancé d'Avenay's *Filées brocatrices*, with the same note of hatred for war. E. Moussat, has some beautiful Sonnets of a war prisoner, *Sous le Ciel d'Allemagne*. J. Ochsé also is well inspired in his *Repose ailleurs*; and so is A. Delacour in *La Victoire de l'Homme*. Quite a number of collections of war poems are described in *Mercure de France*, June 1, 1921 (pp. 455-6).

Although gradually diminishing in number, war novels often still force attention. Claude Anet's *Quand la Terre Trembla* was favored by many for the Prix Goncourt. Dumur's *Le Boucher de Verdun*—a worthy companion novel to *Nach Paris* (1920)—had the same sort of success; moreover, it involved the author in a lawsuit which added to the interest created by the picture of the life of the Kronprins before Verdun. Nobody could help pointing out in *L'Espatrié*, by A. Thérive, the case of Romain Rolland, although the

author tried hard to differentiate the hero's case from that of the "intellectuel" Rolland. Romain Rolland himself has a rather touching novel *Pierre et Luce*, two young people who are dragged into the war but live their "real" life at the same time outside; they die together in the Church of Saint-Gervais in the catastrophe brought about by a shell of the Big Bertha on Good Friday, 1918. P. Reboux, in *Drapeaux* (2 vols.) takes a novel as a pretext to discuss all sorts of problems connected with the war. J. H. Rosny, aîné, in *Les Pures et les Impures* offers a psychological study of love during the war and after, some yielding to the wave of brutal instincts sweeping the world, some taking their love up into a sphere of moral exaltation. J. de Granvilliers, in *L'Amour libérateur* depicts the awakening of love in women in consequence of their activities as war-nurses. Sheridan, in *Renée, confession d'une amoureuse*, explains how individual desertion in case of war is incompatible with honor, but how desertion "en masse" might not be. E. Ripert, in *L'or des ruines* shows a hero who dies in the war dreaming of the "or des ruines" of his Provence. Iman, *Les Nocturnes* is a study of the chiefs of the Bolshevik during the war and before their revolution. Abel Hermant, in *Phili, ou au delà du bien et du mal* tries to tell humorously how a German prince is driven out of his country, by the war, accepts his fate without anger, loafs for some time in Switzerland, and in the course of time is called back as president of his kingdom which has been "called" a republic. Two novels deserve special mention: In Pierre Villetard's *Monsieur Bille dans la Tourmente* (which was awarded by the French Academy the Grand Prix du Roman): Bille is a great talker as well as a cunning fellow who succeeds in achieving all his heroism by words, coming back from the war with a good reputation and undamaged. J. Valmy-Baysse's *Le Retour d'Ulysse* can best be described as a *Gaspard* of after the war: Ulysse Taniau returns from the front only to find his wife gone, his affairs in a dreadful state, and altogether an ungrateful world; but he loses no time grumbling or thinking; he has lots of good sense and gradually with much cheerfulness and good humor, he sets things straight again; even his wife he brings back to her home. Let us only mention two collections of short stories: one by G. Leconte, *Bouffonneries dans la Tempête*, a series of heroes "of the rear"; and H. Bordeaux's sketches *Ménages d'après guerre*.

Ch. Derennes, *Le renard bleu*, tells the adventures of a "soldat auxiliaire" in a small southern city of France. Jacqueline Houley in *Madedé* tells very interestingly how her little boy went through the war.

On the stage nothing very striking was produced: Marie Lénérus's posthumous play *La Paix* was given at the Odéon; Chr. Frogé, in his *Porte-glaive*, adapts to the modern world the theme of Antigone who curses war; H. Béchade, in *Le Remous*, shows how humanity is yielding in turn to reason and to emotionalism,—and is thus dragged into crises; but he does not decide which one is better. Jacques Deval adds one play to the list of stories of soldiers blinded in the war in *Soleil de Minuit*.

J. J. Bernard, *Le feu reprend mal*, takes up a case of retrospective jealousy of a soldier who returns home and finds that an American officer has been long quartered in his house; his suspicion is more-

over unfounded but means none the less real torture. Roman Rolland publishes a play *Le Temps viendra* . . . the time will come when humanity will no longer suffer war.

Some volumes of recollections of the war: Vick-Amiral Rornach, *Souvenirs de la Guerre* (of the famous Ypres battle); the fourth volume of Général Palante's *La Grand Guerre*; *Victoires de la Marne*; Général de Castaing, *Méditations et Pensées de guerre*; Paul Casin, *L'Humaniste à la guerre* (remarkable letters from an intellectual); Alain, *Mars ou la guerre jugée* (a little in the style of Suarès); Barbusse, *Le couteau entre les dents*—no change in his views. Two fine volumes: H. Bordeaux, *La bataille devant Souville* (a phase of the Verdun battle); and Boucher et Delvert, *Verdun* (1 vol. illustré).

We come now to literature which is not affected by the war:

POETRY. From the recognized great poets the following collections must be mentioned: Madame de Noailles, *Les Forces éternelles*, with her usual forceful pantheism; H. de Régnier's *Vestigia Flammae*, a rather gloomy return to the days of his abundant and vigorous production; Paul Fort, a new collection of *Ballades françaises*: *Au pays des Moulins de Hollande*, and *Hélène en fleur, et Charlemagne*; Maurice Bouchor, *Chants de la Terre et de l'eau*; A. Spire, *Samael*, ambitious poem about the fall of man, paradise lost, hardship of humankind and vain aspirations of the soul; Ch. Morice's posthumous *Le Rideau de pourpre*, poems of the time of melancholy symbolism. Rather above the average of excellence were the following: Vaudoyer, *Rayons croisés*; Pierre Jalabert, *La vie enthousiaste*, and Pierre Terme, *Mon languedoc* (the two celebrating sunny Provence); Johachim Gasquet, *Bûcher secret*; Lefebvre, *Prières d'un homme*; G. Aimel, *Poèmes au bord de la mer* (about the genre of H. de Régnier's "première manière"); Tr. Derème, *Poème des Chimères étranglées*; A. Dealimeris, *Rimes chevrolantes* (light), and P. Valéry, *Le Cimetière marin* (gloomy). The following poets have tried to strike original notes: Raoul Ponchon, *La Muse du Cabaret*, a sort of Brillat-Savarin in verse; Edmond Sée, *L'Indicret*, a novel in verse, by short poems; Frank-Nohain, *Fables*, an attempt to walk in La Fontaine's steps; Ch. Maurras, *Inscriptions*, elliptic style; Paul Morand, *Tendres Stocks*, subtleties that remind one of Giraudet in prose; Paul Reboux, *55 Poèmes d'amour*, very bold, but in very correct verses; Antoine Orliac, *Métabolisme*, futuristic cryptography. Women have again published much poetry, e. g.: Marie Burnat-Provins's *Poèmes troubles*, and Marie Jonesco's *Les Vers du Silence*; moreover, the reader will find in *Mercury de France*, Sept. 1, information on poems by the following women: Th. Gadala, J. T. Boussac, V. Grétor, O. Albert-Lambert, M. Noel, Callaud-Bellisle, de Montgomery, F. Darfeuil, D. Houel, Mad. X. and other anonyms.

THE THEATRE. Among the "reprises" let us mention *Cyrano*, Porto-Riche's *Le passé*, Sardon's *Madame Sans-Gêne*, Labiche's *Perrichon*. Adaptations of novels to the stage were many, e. g.: Pierre Benoit's *Koenigsmark*, and *Atlantide*; Farrère's *Homme qui assassina*, and *La Bataille*. The Spanish drama *Dolores* by José Felice y Codina (1897) in spite of its gloominess was well received. There was no rousing success this year, but quite a number of very interesting plays,

such as: Kistemaekers' *La Passante*—A French scholar, prisoner in Germany, flees to Russia, where Bolshevism has just been established; a wife of a great Russian dignitary of old régime avoids death by a marriage on paper with the French scholar, and they succeed in going to France; the woman loves her savior, and saves his life when he is about to die at the hand of a Russian revolutionist. Pierre Wolf's *Chemin de Damas* is the story of a very rich cynic, who is disgusted with life, but coming in contact with a young woman doctor understands the beauty that may be in life; the play is in turn brutally realistic and poetic. H. Bataille in *Tendresse* pictures a deep love in a man of fifty, which is finally rewarded. Lenormand's *Simoun* illustrates the enervating effect of the Saharian climate on the mentality of even normal people. Albert Jean, in *Le Sursaut*, shows a man crushed by his wife and who finally revolts against the tyranny in behalf of his son. Brioux offers a provincial triangle play, *Trois amis*, which was not much appreciated by many, while it reminded some of Molière. J. H. Rosny's *La Prisonnière* is a melodrama that reminds one of *Cavalliera Rusticana*—with an attempt to bring out the difference between civilized nature and primitive nature, in passion. Hirsch's *Cœur de Lilas* finds lofty aspirations concealed in the mind of an *apache*. Descaves' *Vestales* is a very modern play in spite of the title; and Zaza's *Berton et Simon* tells the love of a café-concert artist who goes to the home of the man and then is brought to better thoughts in seeing the child whose home life she was going to wreck. Amiet et Obey's *La souriante Madame Beudet* is a good picture of a woman who suffers martyrdom because of her husband's bourgeois mind. Poizat's *Circé* explains that the reason why Ulysses was not metamorphosed into a hog like his companions by the magician Circé was because he was not mentally a hog. Crommelynck's *Le Cocu magnifique* is a bold attempt to treat in an unconventional vein an old theme of the stage. Jacques Richepin revives the antique farce of *La Matrone d'Ephèse*. Maurice Magre (the successful author of *La Mort enchaînée*, 1920) gives, in verse, *Arlequin*, another tragedy of love. So does Bureau-Guérault in *L'éternel amour*. The inexhaustible Sacha Guitry had three plays: *Comédien*, *Le Grand Duc* (given in New York in English) *Jacqueline* taken from a story by Duvernois of a man who realizes very late that he has been a brute. Certainly one of the plays which claimed most interest was Fr. de Curel's *La Comédie du génie*—a writer who has come to understand that nothing in art matters but what can have a sound social and moral influence on the audience. In Maurice Rostand's *La Gloire*, the despair is shown of a young artist who suffers because the father has absorbed for himself all the fame that can properly belong to one name; the allusion was all too transparent, and the play too much of an elegy.

It is interesting to observe how at times a single theme will simultaneously claim the attention of several writers: The legend of Don Juan was put on the stage not less than five times this year. First came the posthumous play by Rostand, *La dernière nuit de Don Juan*—Don Juan only knew the least profound side of love; this he learns in seeing appear before him all his victims. The Don Juan of H. Bataille, *L'Homme à la Rose*, who attends his own funeral, can realize how much

of his success he owed to the prestige of his name, since now that people believe him dead his power ceases to have effect. H. de Rénier, in *Le Srupule de Sganarelle* shows the valet of Don Juan who is finally indignant about all the evil done by his master, only precipitating a new tragedy in warning a new victim,—as the woman is fascinated all the more by the devilishness of the wicked hero. Nozière's *Elvire* is a poetic fancy play around a Don Juan episode, and Eggerter also chose to deal with the subject in verse in his play *Une halle de Don Juan*. The fascination by the past or by old legends is also found in plays like J. Variot's *La Rose de Roseim*, an Alsatian legend; F. Herold's *Cléopâtre*; Paul Fort's *Louis XI, homme curieux*; L. Languier's *Les Bonaparte* (in verse).

A great variety of plays were offered by the company of the Vieux Colombier: *Figaro* was revived; a one-act play by Anatole France, *Au petit bonheur*; H. Ghéon, *Le Pauvre sous l'escalier*, the old legend of St. Alexis, symbolically readapted: The hero comes back from war, a stranger in his own home, where he does not claim his place; he will live under the staircase and die a martyr; he is happy. Schlumberger, *La Mort de Sparte*, pictures the struggle between the old Lycurgan spirit and the inclinations of the younger people who revolt as they wish to live according to modern less ascetic ideas. F. Porché's *Dauphine* seems almost like a new edition of *Le Butoir et la Finette*, aside from the direct allusions to the Great War. L. Fallens, *La Fraude*, a terrible drama on the Dutch frontier. Some good successes in comedy were (besides such as are mentioned in other connection): *Les Mariés de la Tour Eiffel*, by Cocteau; Falk et Bousquet, *Un ange passa*; Tristan Bernard, *Daisy*. A complete failure seems to have been P. Claudel's *L'Homme et son Désir*, with its strange symbolism.

The *Revue Mondiale* of August 1 gives an account of the "Théâtre du Peuple," managed by Gémier, at the Trocadéro. Gémier was afterwards called to the Odéon to replace Gavault. L'Oasis made an interesting reconstitution of the Café-Chantant of the second Empire with songs famous at the time. The "Théâtre du Peuple," of Bussang, in the Vosges, run by Pottecher was reestablished having of course been suspended during the war. Mathias Morhardt was making an attempt to establish at Cap Breton (Dept. des Landes), a theatre specially of, for, and by children. The book of souvenirs of Madame Dussane, *La Comédie Française* was eagerly read. A new edition was printed of the original *Ubu Roi*, by Jarry, which had been out of print so long.

THE NOVEL. Pierre Benoit, who is a first class story teller, tried to become a philosopher in his new novel *Le Lac Salé*, and the success was mediocre; it is an unconvincing attack on American clergymen and an exaltation of a Jesuit priest in Utah, during the troubles of the middle of the last century. The Prix Goncourt having gone to a negro, of Martinique, René Maran, for his very realistic negro novel *Batouala*, much discussion ensued and it was suggested in many quarters that while the book was interesting considering that it was written by a negro, it was far from equal to the rival novel which had as many suffrages (five) and lost the prize only because the president had given his vote to Maran. This rival novel, *L'Épithalame*, by Jacques Chardonne (pseudonym for Boutelleau) is a two-volume study which reminds one of the

pitiless analysis of character of which Stendhal's *Rouge et Noir* remains the prototype. The other two much discussed novels—by Dumur and by Villetard—were mentioned with war books. The most undisputed success of the year, however, was the delightful novel of French Canadian life *Maria Chapdelaine*, by Louis Hémon (who died by accident in the Canadian woods); the word "masterpiece" has been used freely by the best critics.

No particular tendency prevails in the novel of the year. A. Thérive, however, in *Revue Critique*, November 25, thinks that he can discern an offensive return of realism. Works of men whose fame is already firmly established, and whose inclinations have, all told, remained the same as in former years were as follows: P. Bourget, *Un drame dans le monde*; Lavedan, *Gaudias* (see YEAR BOOK, 1920); Marcel Prévost, *La nuit finira*; H. de Régnier, *Pêcheresse* (keen analysis of a woman equally sensual and puritanic); P. Marguerite finished before dying a two-volume novel *Le sceptre d'or*, in which he attacks money makers as he had attacked pleasure-seekers in his last novel *Jour*. All in their own and known manner also were the following: R. Boylève, *Élise*; E. Jaloux, *Fin d'un beau jour*; Tinayre, *Persephone*; H. Bordeaux, *La chair et l'esprit*; A. Corthis, *Sa vraie femme*; Pierre Grasset, *Aimer*; J. H. Rosny, *Amoureuse aventure*; A. Beaunier, *L'amour et le secret*; H. Bachelin, *Le béliar, la brebis et le mouton* (in the country); Binet-Valmer, *L'enfant qui meurt* (a child suffering from tuberculosis); Cl. Farrère, *Condamnés à mort* (story of a strike in the twentieth century, in America, and in which the strikers all must perish because of the scientific inventions in the hands of capitalists); Duvernois, *La brebis galeuse* (same theme as Hervieux's *Les Paroles restent*; a girl unjustly suffering of terrible slander); Marc Elder, *Thérèse ou la bonne éducation*, and *Sang des Dieux* (unworthy child of an Academician); Schlumberger, *Un homme heureux* (a man who has the energy to start life entirely anew); L. Werth, *Yvonne et Pijallet* (a story that refuses to be commonplace); M. Boulenger, *Marguerite* (story of a man who suffers because he has no control over the life of a child for whom he is responsible but cannot recognize); E. Giraudoux, *Suzanna et le Pacifique* (the story of a Robinson Crusoe); A. Lichtenberger, *Raramené* (picture of the inhabitants of an island in the Pacific in which once more certain good features of the man of nature are studied); Marcel Berger, *Les Dieux tremblent* (a curious story of a strange and powerful maniac who causes all the guests in a great hotel to die after putting them all in a state of erotic folly); E. Montfort, *Chanson de Naples* (Naples the city of passion); Duhamel, *Confession de minuit* (trying to picture the mechanism of the brain with all its apparent contradictions); Gyp, *Mon ami Pierrot* (a good story of the old time Gyp); Tristan Bernard, *L'enfant prodigue du Vésinet* (with the usual wit and good humor). Quite a crop of novels by women some of whom have the talent to know their own talent like: Gérard d'Houville, *Tant pis pour toi*, Jehan d'Ivray, *Rose de Fajorn*, Séverine, *Line*, Jane Catulle-Mendès, *Prière pour l'enfant mort*, Jean Berteux, *Pavot mystique*. Others continue to offer pictures of the "real woman," and show her as low a creature as they can imagine: Marcelle Vioux's *Une enlisée* owes much of its success to its outspokenness; and Madeleine Marx's

much advertised *Vous* (published simultaneously in New York, in English, and in France) is after all only one more imitation of the style inaugurated by Marie Baskirtsheff, and also claims an introduction by Barbusse. Rachilde, in *Souris Japonaise*. . . is Rachilde. Some authors less well known by the general public have given novels which attracted attention: A. de Salmon, *La négresse du Sacré Cœur* (life on the famous hill of Montmartre); G. Chéreau, *Valentine Pacquault* (realism with the fine artistic finish aimed at by Faulbert); Lafage, *Abeilles mortes*. L. F. Rouquette, *Le grand silence blanc* (reminding of the *Call of the Wild*, in Alaska); André Billy, *Barabour ou l'harmonie universelle* (satire on reformers); A. Lang, *Les responsables* (atavism in outspoken terms); M. Dekobra, *Haryndal philosophe* (a very humorous story of a boy born in a harem who has many men and many women he calls fathers and mothers and he tries to work out some philosophy of life); Dr. Lucien-Graux, *Reincarné* (a spiritualist novel supposed to be based on facts). Fr. Jammes writes a historical novel for the rehabilitation of *Saint-Joseph*; José Germain revives the legend of King Arthur's wife in *Pour l'amour de Guenièvre*; and Jules Perrin writes *Le mariage d'Abélard* in a new and suggestive manner. We might end by quoting the *roman d'aventure*, *Anicel*, by the "dadaist" Léon Aragon.

Some of the best volumes of short stories are: Marcel Tinayre, *Lampes voilées* (stories of people who have come to an age when the lamp of their lives are not extinguished, but the light is veiled); Paul Reboux, *Chonchon et Chouchoune* (humor and delicacy); B. Duvernois, *Gisèle* (3 stories); Pierre Mille, *Nuit d'amour sur la montagne*; E. Rey, *Ariane* (adaptation of a new philosophy to old legends); A. Pavie, *Contes du Cambodge*.

OTHER FORMS OF LITERARY ACTIVITY. Last year we pointed out the many autobiographies published. This tendency seems to continue. See F. Jammes, *De l'âge divin à l'âge ingrat*, the first part of the story of his life; André Gide, *Si le grain ne meurt pas* (published in *Nouvelle Revue Française*); Hugues LeRoux, *Te souviens-tu*, evoking the time when his son (killed in the war) was still alive.

Philosophical meditations so expressed that they can be counted as literature have retained the attention of the reading public, as Maeterlinck's *Le Grand Secret* (the question of the spiritualistic world); Colette Yver, *Dans le jardin du féminisme*; E. Seillière, *G. Sand, mystique de la passion, de la politique et de l'art*; Elie Faure, the intense author of *La Sainte Face*, writes in a lyric style about *Napoleon* on the occasion of the centenary of his death. Edouard Schuré has published a beautiful and inspiring volume and very timely, *L'âme celtique et le génie de la France à travers les âges*. René Gillouin, in *Une nouvelle philosophie de l'histoire moderne et française* summarizes with little criticism the "philosophie de l'impérialisme" of Seillière with its somewhat worn out diatribes against romanticism. Jean Rostand, in *La loi des riches*, directs a scathing attack against the class to which he belongs. The book was read with no little amazement; he is the second son of Ed. Rostand.

CRITICISM, HISTORY OF LITERATURE, AND LITERARY EVENTS. Scholars seem to have almost completely resumed their prewar activity. The output is considerable. Volume XIII of *Levi's*

great work: *Histoire de la Nation Française*, contains the contributions of Picavet, Lavisé, and Bédier on mediæval literature, all three very remarkable. For the time of the Renaissance: H. Chamart, *Origines françaises de la Poésie du la Renaissance*; Pierre de Nolhac, *Ronsard et l'Humanisme*. J. Boulenger edits Noel du Fail's *Propos rustiques*. For the XVIIth century: Magne, *La joyeuse jeunesse de Tallemant des Réaux*; André Allays, *Madame de Sévigné*; G. de Truc, *Lettres de Madame de Maintenon à d'Aubigné et à mad. des Ursins*; Mad. Saint René Taillandier, *Mad. de Maintenon*; Milhaud, *Descartes savant*; G. Cohen, *Ecrivains Français en Hollande au XVIIe siècle*. For the XVIIIth century: G. Seillière, *J. J. Rousseau*. For the XIXth century: G. Goyau, *Pensée religieuse de Joseph de Maistre*; F. Vermales, *Notes sur J. de Maistre inconnu*. H. Bordeaux, *Au pays de Lamartine*; L. F. Choisy, *Sainte Beuve, l'homme et le poète*; Michaut, *Sainte Beuve*; C. Bouglé, *Proudhon et son temps*; L. Arréat, *Nos poètes . . . de Béranger à Samain*; T. Bertrand, *Amitié romantique* (G. Sand et Rollinat; F. du Miomandre, *Pavillon de Mandarins* (Stendhal, Rousseau, de Gourmont, Verhaeren, etc.); A. Lantoin, *Paul Verlaine et quelques uns*; M. Esch, *En relisant Maupassant*; Deffoux et Zavier, *Le groupe de Médan*; C. Maclair, *Princes de l'esprit* (Poe, Flaubert, Mallarmé, etc.); Antoine, *Mes souvenirs sur le Théâtre Libre*. For the XXth century: J. de Suberville, *Edmond Rostand*. Peirre Lasserre, *Les Chapelles littéraires* (an attack on Claudel, Jammes, Péguy, or even more on their blind followers); P. Gsell, *Matinées de la Villa Saïd* (conversations with Anatole France); J. H. Rosny, *Aîné, Torches et Lumignons* (indiscretions on contemporary writers by one of the best known of them). We ought to mention also: *Anthologie littéraire de l'Alsace et de la Lorraine du XIIe au XXe siècle*, edited by van Bever; Th. Mustoxidi, *Hist. de l'Esthétique Française*. In the domain of Linguistics: E. Bonaffé, *L'anglicisme et l'anglo-américanisme dans la langue française*, *dictionnaire étymologique et historique*; J. Mazoureau, *La Linguistique*; and L. Sainéan, *Le Langage Parisien au XIXe siècle* (sharply criticised by Enault, a good authority himself, in *Mercur de France*, June 16, 1921).

The question whether it is wise to publish the tenth and last volume of the *Journal des Goncourt* was not settled. Another lively debate of the year was about Flaubert, who was treated with little respect by the Secrétaire perpétuel of the French Academy, Mason-Forestier, and whose centenary was celebrated with enthusiasm by many. The tercentenary of La Fontaine was well observed too; and some attention was given to the centenary of Amiel. The French Academy received M. de Flers, Chevrillon, and Bédier; they lost Jean Aicard, who had not been replaced at the close of the year. Madame Aurel, as a woman, launched, not without sensation, her candidacy (letter of June 29). The Nobel Prize for Literature went to Anatole France. The Grand Prix de Littérature went to Madame de Noailles; the Grand Prix du Roman went to P. Villetard; the Grand Prix de Poésie to J. de Suberville; the Prix Goncourt to R. Maran; the Prix de la Vie Huereuse to Raymond Escholier, for the novel *Cantegril*. The poet R. de Montesquiou-Fézensac, the playwright Feydeau, and Paul Margueritte died.

FRENCH LITERATURE, ANCIENT. See PHILOLOGY, MODERN.

FRENCH SOMALI COAST OF FRENCH SOMALILAND. A French colony lying between Italian Eritrea and British Somaliland on the Gulf of Aden. Area, about 5790 square miles; population estimated in 1917 at about 208,000. The chief city is Djibouti with a population in 1917 of 13,608, of whom 294 were Europeans. It is the seat of government and the chief port. There is a considerable inland trade and a profitable trade with Abyssinia. The fisheries on the coast are of the chief importance, but salt-mining has been developed. No later figures for trade were available than those given in the preceding YEAR BOOK. The local budget for 1920 balanced at 2,887,000 francs. The country is under a governor assisted by an administrative council.

FRENCH SUDAN. A French colony of West Africa bounded on the south by the frontiers of the Ivory Coast, the Gold Coast and the Upper Volta, on the east by the Military Territory of the Niger, and the west by Mauritania and the frontier of French Guiana and on the north by Algerian territory. Area about 617,600 square miles; population, in 1920, about 2,200,975 including 975 Europeans. It was formerly known as the Upper Senegal-Niger but the name was changed by decree, Dec. 4, 1920, to French Sudan. The chief towns are Bamako, the capital (16,000); Segou (8405); Kayes (12,000); Djenné (5450); Timbuktu (4270). The chief products are peanuts, millet, maize, cotton, castor oil plant, rice, sesame, rubber, kariti, and cattle. The chief imports are foodstuffs, cottons, and metal work and the chief exports, peanuts, rubber, cattle, gum, kopak, skins, and wool. The budget for 1920 provided for 13,567,000 francs. There is a railway from Kayes to Koulikoro a distance of 344 miles. The colony is under the governor-general of French West Africa (q. v.).

FRENCH WEST AFRICA. The following colonies and territories belonging to France in western Africa, with their areas and populations in 1920: Senegal, area, 74,112 square miles; population, 1,204,113; Guinea, 95,218 square miles; population, 1,851,200; Ivory Coast, 121,976 square miles; population, 1,407,030; Dahomey, 42,460 square miles; population, 860,580; French Sudan, 617,600 square miles; population, 2,200,975; Upper Volta, 154,400 square miles; population, 3,000,100; Mauritania, 347,400 square miles; population, 240,144. The details for these separate divisions are given under the above titles respectively. There is a general budget for the whole region, which in 1920 amounted to 40,509,800 francs. The military forces employed in French West Africa in peace time have numbered about 13,500 of whom 1500 were Europeans and the police force numbered about 3000. The whole region is under a governor-general, whose headquarters are at Dakar and who is assisted by a council. Each colony is under a lieutenant-governor, subject to the governor-general. The imports and exports for four of the principal colonies, namely, Senegal, French Guinea, Ivory Coast, and Dahomey, were in 1918 and 1919 as follows: Imports (1918), 362,942,333 francs; exports, 271,187,843; imports (1919), 292,009,589; exports, 324,296,815. The vessels entered and cleared at the ports of French West Africa in 1919 numbered 3169 of 6,430,949 tons. Railway

mileage was 1370 and the telegraph mileage 12,500. Governor-general in 1921, M. Merlin. See also TOGOLAND.

PRODUCTION. The French possessions in West Africa are rich in natural products and the possibility of valuable developments became evident after the war. A programme to that end was drawn up by M. A. Sarraut, Minister of the Colonies, and M. Martial Merlin, Governor-General. Not only did it appear that the colonies might supply a vast quantity, of the raw material indispensable to French industry, but that under French direction nearly everything required for consumption in the mother country might be produced there. The agricultural population is sparse in proportion to the vast extent of the region, but sufficiently numerous in the districts suited to agriculture to admit of rapid production by the aid of agricultural machinery. In 1921 various measures for the agricultural development of these districts were under discussion including the creation of agricultural mutual credit societies, coöperatives, etc. There seemed an especially good chance of developing there the production of cotton, and thus rendering France less dependent on the American supply. Europe was deriving from the United States about 80 per cent of the cotton required by her industries and at the same time the needs of the United States were increasing and the supply available for export was diminishing in proportion. England was taking measures to assure herself of a cotton supply from her colonies. Down to the present time French West Africa had supplied but a small portion of the necessary material for the French market, that is to say, hardly more than a thousand of the 300,000 tons regularly consumed. Cotton fibre was for the most part cultivated in the Sudan and while there were resources in Senegal and the Niger, they were not as yet developed. The Sudanese cotton fields covered more than 150,000 square kilometres and it was hoped that by extending that area and by the developing of native cultivation the supply might be greatly increased. Cotton production in French West Africa was dependent upon works of irrigation which the natives were unable to carry out. Efforts to develop the industry had been going on since 1903 under the initiative of the governor-general of French West Africa, and a considerable area had been reclaimed by irrigation. The exports from 1907 to 1919 had risen as follows, in the colonies of that region: Upper Senegal and Niger, from 56 to 2180 bales; Ivory Coast, from no exports at all to 1314 bales; Dahomey, from 320 to 1065 bales; Togo, from 432 to 2000 bales; French Guinea, from no exports at all to 220 bales. (The bale contains 250 kilos.) Thus there was a total export for 1919 of about 6500 bales, a considerable increase but utterly inadequate to the needs of French industry. The French Colonial Cotton Association had made unsuccessful attempts to acclimatize American cotton but was still pursuing the experiment by

the aid of irrigation and there was some prospect of success. The governor-general of French West Africa in 1921 was studying the Egyptian system in the hope of learning methods that might be applied in the French colonies and other investigations were going on under bodies of engineers in the great valleys of the Niger and the Senegal. Among the latter was a mission under M. Bélime and a plan worked out by it was under consideration in the closing months of the year.

FRIED, ALFRED H. See **NECROLOGY**.

FRIEDENTHAL, ALBERT. German pianist, died in Batavia, January 17. He was born in Bromberg, Sept. 25, 1862. On his numerous tours of Europe, Africa, Central and South America, Australia, and the Far East he made an extensive collection of the folk-songs of various nations, which he published in several volumes. He also wrote songs and piano-pieces.

FRIEDMANN, IGNAZ. See **MUSIC, Artists, Instrumentalists**.

FRIENDS, RELIGIOUS SOCIETY OF. Four branches make up this denomination: the Society of Friends (Orthodox) with 92,379 communicants in 1921; Religious Society of Friends (Hicksite) with 17,170 communicants; the Orthodox Conservative Friends (Wilburite), with 3373 communicants; and Friends (Primitive), with 60 communicants. The largest and most active is the Society of Friends (Orthodox). It holds a Five Years' Meeting, quinquennial, composed of delegates from 12 of the 14 yearly meetings in the United States and one in Canada. The next meeting will be held in 1922 at Richmond, Ind. The foreign and domestic missionary work of the denomination is carried on by special boards. It supports nine universities and colleges, among which Haverford College at Haverford, Pa., is the best known. *The American Friend* is the official organ of the society; it is published in Richmond, Ind., where also are the headquarters.

Excellent work was performed by the American Friends' Service Committee during the war. It has continued to give aid to the afflicted peoples of Europe. In 1920 there were about 90 workers in Poland fighting the typhus and endeavoring to make the conditions more sanitary. The Friends were establishing industries in Vienna and endeavoring to find work for the people. Relief work was continued in Germany and large quantities of food furnished the undernourished children of that country.

In 1920 the denomination presented to the government of France the Chalons Maternity Hospital which it had used throughout the war; two members of the church are to be on the hospital staff permanently.

FRUIT. See **HORTICULTURE**.

FUCINI, RENATO. See **NECROLOGY**.

FUEL. See **BOILERS and CHEMISTRY, INDUSTRIAL**.

FURS. See **ALASKA**.

FUTURE TRADING ACT. See **AGRICULTURAL LEGISLATION**.

G

GABRIELS, HENRY. Roman Catholic bishop, died at Ogdensburg, N. Y. April 23. He was born in Belgium, Oct. 6, 1838; and educated in the schools there and at the University of Louvain; but came to the United States and taught theology in St. Joseph Seminary, Troy, N. Y., 1864-92. He was president of that institution after 1871. On May 5, 1892, he was appointed bishop of Ogdensburg, N. Y. He was the author of a work on rubrics and translations from the Hebrew.

GABUN. See FRENCH EQUATORIAL AFRICA.

GALBRAITH, FREDERICK W., JR. See NE-CROLOGY.

GALICIA. Formerly an Austrian province in the Austro-Hungarian monarchy lying to the south of Poland and to the west of Podolia in Russia. On Nov. 21, 1919, the Supreme Council decided to bestow eastern Galicia on Poland under mandate for a period of twenty-five years, but the term of Polish control was subsequently left indeterminate.

GALICIAN DIALECT. See PHILOLOGY, MOD-ERN.

GALLICO, PAOLO. See MUSIC, *Festivals*.

GALLSTONE DISEASE. The medical profession are in general skeptical concerning the solubility of gallstones concretions, whether spontaneously or through the use of medicines. Even if this phenomenon sometimes occurs it can hardly mean anything of importance to the patient in the long run. Naturally stones crowded together present facets and in rounded stones there is a presumption that a certain amount of solution has taken place. Other stones are of a worm-eaten appearance or suggest carious teeth. Dr. Hedinger, the pathologist of the University of Bale, Switzerland, has made a special study of this subject and makes a report in the *Schweizerische medizinische Wochenschrift*, 1921, no. 45. When the material for study is very large a few stones will be found of such shape that partial solution must have taken place. Some stones show thin rings and fragments of the same. Others less far advanced show a marked central depression which in time would become a ring, and finally break up into fragments. More convincing is the result of experiment when human stones are introduced into the gall bladder of a living dog; these stones are quite promptly dissolved. This is of course no evidence of the solubility of human stones in the human body. In the latter, evidences of solution are present in not over one per cent of all stones studied. The phenomenon is believed to occur only when the stones lie free in the gall bladder.

GAMBIA. British colony and protectorate at the mouth of the river Gambia in West Africa. Area of the colony proper, 4 square miles; population about 8000; of the protectorate 4130 square miles; population about 240,000. Capital, Bathurst on the island of St. Mary. In 1919 there were eight elementary schools aided by the government with an enrollment of 1504 pupils. The

imports in 1919 were £1,250,321; exports, £1,553,521, both including specie. The budget in 1919 was as follows: Revenue, £180,585; expenditure, £143,451. The total tonnage of vessels entered and cleared in 1919 was 441,860 of which 354,837 were British. Governor at the beginning of 1921, Captain Cecil H. Armitage.

GAMBRELL, JAMES BRUTON. Baptist clergyman, died at Dallas, Texas, June 10. He was born at Anderson, S. C., August 21, 1841; studied at the University of Mississippi; and was ordained to the Baptist ministry in 1857. He was superintendent of the Baptist mission in Texas; and president of the Texas Baptist Educational Commission. He was afterwards a professor in the Southwestern Baptist Theological Seminary. For three years he was the editor of the *Baptist Standard*.

GANZ, RUDOLF. See MUSIC, *Orchestras*.

GARBAGE AND REFUSE DISPOSAL. The uncertainties and difficulties that have prevailed in the field of garbage and refuse disposal for several years still continue. The difficulties centre largely in the high cost of capital for new plants and, as regards the operation of old plants, in the high prices for materials and labor applicable to all methods of disposal, while the prices of salable products from garbage reduction and from hog feeding plants are low. Garbage disposal continues to be on a more uncertain and unsatisfactory basis than other technical city work. Only here and there does a city class garbage disposal as a branch of engineering that demands the close attention of qualified specialists. At Boston the City Council, acting in accordance with the recommendation of a special committee composed of city officials, rejected the offer of the private company holding the contract for garbage and refuse disposal for the major part of the city to forfeit the amount of its \$100,000 bond for the satisfactory performance of its contract if it were relieved from the latter, on the ground that it was losing money. Likewise, the Council rejected the company's offer to go on with the contract if the city would pay it \$25,000 a month additional. In September, Boston received bids for the disposal of garbage and refuse for a period of ten years from July 1, 1922, the city to deliver the material to the successful bidder at the water front. The large increase in the bids for the new ten-year contract as compared with the one about to expire illustrates the difficulties confronting cities and contractors in this field. Under the old contract the city paid \$1,402,000 for ten years on a sliding scale, the price for 1921 being \$156,000 and for the final half year of the contract at the rate of \$160,000 a year. The same contractor bid a total of \$4,202,000 for the next ten years, on the basis of \$436,000 a year at the start, declining to \$402,000 for the last full year and at the rate of \$400,000 a year for the last one-half year of the term. The only bidder in the competition offered to do the work for \$3,795,-

000, at a uniform yearly rate throughout the contract. Subsequently, the old contractor reduced his total bid to \$3,914,000 for the ten years, but the new bidder adhered to his earlier bid. The special committee, the Commissioner of Public Works, and the Mayor recommended that the contract be awarded to the lowest bidder. After protracted public hearings by the City Council, it seeming likely that the recommendation would be approved, the Mayor-elect applied to the court for an injunction to prevent the award being made until after he and a partly reconstituted City Council should come into office. The court held that the award of the contract was more a matter of discretion and judgment than of law and characterized certain allegations of fraud as "the hurling of an epithet." On December 28, the contract was awarded to the low bidder. *New Bedford, Mass.*, bought the garbage reduction plant owned and operated for a number of years by a private company, thus joining in the movement for municipal ownership (q. v.) of such plants begun a number of years ago by the city of Cleveland, Ohio, and noted from time to time in various issues of this YEAR BOOK. *Providence, R. I.*, awarded a five-year contract for garbage collection and disposal, the garbage to be fed to hogs, thus continuing a method of disposal in use at Providence for many years. Bidders in 1921 were given the option of disposal by hog feeding, reduction, or incineration, but no bids were received except for disposal by feeding. The average yearly contract price of the successful bidder was \$80,000 a year, beginning at \$100,000 and diminishing by \$10,000 a year. A special investigating committee, composed of city officials of *New York City*, submitted a preliminary report in which no final conclusion was offered as to the best means for the disposal of the garbage of the city, owing in part to the fact that studies and experiments on this phase of the subject were still under way. The committee did recommend the separate collection of garbage, rubbish, ashes, and street sweepings; that as soon as possible all work of collection and disposal be done by the city without the intervention of contractors; that ashes, unmixed with any other refuse, be used to fill low land, and that where possible this should be land owned by the city; that reclamation stations be established for recovering salable material from rubbish, the unavailable substances to be burned in furnaces operating at sufficiently high temperatures to prevent nuisance; that all street sweepings be burned at these reclamation stations; and that a reduction plant for dead animals be constructed immediately. At *Newark, N. J.*, *Buffalo, N. Y.*, and *Baltimore, Md.*, all three cities having been noted in earlier YEAR BOOKS as having let contracts for garbage disposal by feeding to hogs, each city to be paid for the garbage at a price per ton, varying with the selling price of the best live hogs for killing on the Chicago market, difficulties were experienced during the year. In each case the trouble was in part due to the heavy decline in the price of hogs fattened at the feeding plants. Operations were continued throughout the year at the Newark feeding plant, but at Baltimore the contractor disposed of the hogs without notifying the city and left the city to get along as best it could, while at Buffalo the city took over the hog-feeding plant for operation by itself. The Baltimore contractor complained that during

the winter the garbage was delivered by the city in a frozen condition and that during a part of the time in the previous summer it was stale and putrid instead of being fresh as called for by the contract, the hogs refusing to eat it when frozen or when putrid. At Buffalo there was much complaint and opposition on the part of people living in the vicinity of the hog-feeding plant, which was located in outlying territory in another municipality. The local outlying health authorities brought the matter to the attention of the State Department of Health, which ordered improvements made. The local health authorities threatened legal proceedings against the contractor. As already stated, the city finally took over the plant. Its intention was to make improvements and carry on the work as a municipal enterprise. The cities of *Rochester* and *Syracuse* put in operation municipally owned reduction plants of the Cobwell type (see earlier YEAR BOOKS) that had been under construction for some time past. Each of these cities had previously taken over reduction plants built and operated by private companies. At the close of the year *Philadelphia* stood ready to complete the change from contract to direct municipal work in its entire Street Cleaning Department, this change having been contemplated by the charter amendments that went into effect early in 1920.

The city had already taken over the privately owned garbage reduction works and during the year cleaned portions of the streets. Toward the end of the year Philadelphia received bids for a large incinerating plant but owing to strong opposition as to the location of such plant on the site chosen for the purpose, the contract was not awarded and up to the end of the year no further action in the matter had been taken. This proposed incinerator was one of several that had been proposed, for location in different parts of the city in order to reduce the length of haul. It had been left undetermined whether both garbage and rubbish, or rubbish only, were to be burned in these proposed incinerators, the city having a reduction plant available for treating the garbage, as already noted. Following the abandonment of the *Baltimore* contract for garbage disposal by feeding, the city let a contract under which the contractor proposed to sell for use as fertilizer garbage to be delivered to him by the city. The authorities of Baltimore County brought an injunction suit to prevent the disposal of garbage in this way, alleging that it would create a nuisance. The city therefore disposed of the garbage for a considerable period by burial, meanwhile letting a contract for disposal for a term of years by reduction. Labor-saving machinery was utilized in burying the garbage. In the three months, September, October, and November, prior to the new garbage reduction works going into operation, the city buried 18,315 cu. yd. of garbage at a cost of \$1.225 per yard, including unloading and burial only, and about \$1.68 taking into account the cost of equipment and other factors, but including nothing for transportation. The method used was described in *Engineering News-Record*, Oct. 27, 1921. The new Baltimore contract for disposal by reduction runs for ten years. The city pays the contractor \$2.70 per ton for garbage disposal, the city guaranteeing to supply not less than 40,000 tons of garbage each year. The city delivers the

garbage by boat to the reduction plant which is located about 11 miles below the city. The Arnold-Edgerton process of garbage reduction will be used. The plant will be located in a building owned by the contractor and used by him under an earlier contract. *Savannah, Ga.*, closed down a garbage incinerating plant early in the year and began disposing of its garbage by using it with other solid wastes for filling in marsh lands. The Savannah incinerator was one of the few in operation in the United States which produced steam that was utilized for power, except for works purposes. The steam at Savannah was piped to the water-works pumping station, close by, and decreased by that amount the amount of steam which had to be raised from coal. The shift from disposal by incineration to disposal by filling was made after a change in city administration. The new administration claimed that the incinerator was run down and inefficient. It appears also that the change in the water-works system had resulted in the abandonment of the water-works pumping plant which was utilizing the stream. *New Orleans*, which had previously virtually decided to install a garbage reduction plant, determined during the year to build several incinerators instead and called for bids for one of these but no contract had been let at the close of the year. *Dallas, Texas*, let a contract for four incinerators, to be located on the site of old garbage dumps. At *Los Angeles, Calif.*, where a contract for garbage disposal by reduction under which the city was paid 51c. a ton for garbage delivered to the plant had been in force for some years, the contractor claimed that he was losing money and offered to sell the plant to the city. Instead, the City Council voted to award a contract for disposal under which the contractor was to pay the city 96c. a ton for garbage delivered to a central loading station and the contractor expected to take the garbage out of the city for disposal by feeding to hogs. The Los Angeles County authorities opposed this method of disposal at the site chosen and subsequently a second site within the county was selected. A 10-year contract for disposal by feeding to hogs in San Bernardino County was subsequently let to another contractor who agreed to pay the city 60c. a ton for garbage delivered to him. At *Seattle*, where some years ago the city closed down two or three high-temperature refuse destructors and has since been disposing of most of its garbage by what is known as the "sanitary fill" method, the city let a contract under which a company agreed to take garbage from restaurants and feed it to hogs. The restaurants claimed legal right to the garbage, but the Superior Court refused to grant an injunction to prevent the continuation of this contract. At *Montreal, Quebec*, bids for a 300-ton garbage incinerator were invited.

In *England* where for many years high-temperature destructors with heat utilization were held to be the only proper method of refuse disposal, garbage and refuse salvaging plants are becoming notable. In these, by means of sorting, screening, and pulverizing, various salable materials are recovered, as: rags, paper, bottles, tin cans, and other metals, all of which are picked out as the refuse passes over belt conveyors; also, from the residue, unburned and partly burned coal for use as fuel, and from the fine screenings a low-

grade fertilizer is produced by pulverizers. Unsalable wastes only are burned in furnaces and raise steam for works' purposes. Installations of this kind are operated by the boroughs of Bermondsey, Hampstead, and Southwark, in the administrative county of London, and at Bury, Durham, Gateshead, Oswestry, and elsewhere in England. Some details of the Marylebone plant and of a 500-ton-per-day plant under construction for Sheffield, for which the Ministry of Health approved a loan of £180,000, are given in the Engineering Supplement of the *London Times* for June, 1921. Abstract of a report by a joint refuse disposal committee of the London Metropolitan boroughs appeared in *London Engineering* for Dec. 31, 1921, with editorial comments, and in the *London Surveyor* for Jan. 6, 1922. The report shows that of the 1,317,148 long tons or about 300,000 cubic yards of refuse produced in the cities of London and Westminster and the 27 other municipalities (boroughs) in the county of London only 18.66 per cent goes to destructors while the remainder is, for the most part, dumped on land.

A comprehensive treatise on *The Collection and Disposal of Municipal Refuse* (New York), by Hering and Greeley, was published during the year.

GARCIA Y CARBONELL, LUIS. See NECROLOGY.

GARDEN, MARY. See MUSIC, Opera.

GARDENING. See HORTICULTURE.

GARDNER, JOHN J. See NECROLOGY.

GAS ENGINES. See INTERNAL COMBUSTION ENGINES.

GAS WORKS. See MUNICIPAL GOVERNMENT.

GAYNOR, JESSIE S. American composer, died at Webster Groves, Mo., February 20. She was born in St. Louis, Feb. 17, 1863. For many years she taught in Chicago, St. Joseph, and St. Louis. Her charming piano-pieces and songs for children have become deservedly popular. She also wrote three operettas.

GEMS AND PRECIOUS STONES. The following table shows the value of precious stones produced in the United States in 1920, by States:

Montana.....	\$223,196
Nevada.....	12,920
California.....	5,504
Arizona.....	5,328
Maine.....	3,738
Oregon.....	2,475
Arkansas, Colorado, New Mexico, Utah.....	8,435
Other States ¹	3,608
	\$265,205

¹ Connecticut, Georgia, Idaho, Michigan, Minnesota, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, South Dakota, Texas, Virginia, and Wyoming.

The precious stones (excluding pearls) imported into the United States in 1920 were valued at \$66,100,742, the highest value ever reported except that for 1919, from which it showed a decrease of 28 per cent. Table of imports for ten years is given below. The value of the pearls produced is omitted from the total, for pearls are not a mineral but an animal product, being deposited in the shells of mollusks. They are lustrous calcareous concretions with animal membrane between successive layers, and they owe their beauty and value in part to their organic structure; but as they are among the most desired of gems, their value is given in a separate column in the table of imports.

GEMS AND PRECIOUS STONES IMPORTED AND ENTERED FOR CONSUMPTION IN THE UNITED STATES, 1910-20

Year	Glasier's	Dust and bort	Rough or uncut	Diamonds		Other stones not set	Total, excluding pearls	Pearls
				Cut but not set				
1910.....	\$ 213,701	\$ 54,701	\$ 8,901,890	\$25,593,641	\$4,237,232	\$39,091,165	\$ 1,626,083	
1911.....	199,930	110,434	9,654,219	25,676,302	3,820,703	39,461,588	1,384,376	
1912.....	452,810	94,396	9,414,514	22,865,686	3,433,163	36,260,569	5,130,376	
1913.....	471,712	100,704	12,268,543	24,812,604	2,805,963	40,459,526	5,002,624	
1914.....	579,332	77,408	2,851,933	11,976,871	1,649,875	17,135,419	2,090,018	
1915.....	366,793	75,944	7,020,646	13,177,919	1,078,391	21,719,893	4,513,909	
1916.....	836,018	67,290	11,441,328	24,282,140	2,303,351	38,930,127	11,336,071	
1917.....	1,098,102	349,746	13,092,855	18,421,838	1,883,810	34,846,351	4,947,509	
1918.....	718,397	475,870	12,636,024	7,734,150	1,102,398	22,666,839	765,929	
1919.....	984,381	1,420,442	20,306,758	64,085,610	5,161,639	91,958,830	11,008,973	
1920.....	1,527,753	3,387,488	10,526,125	45,240,013	5,419,363	66,100,742	7,879,384	

GENERAL EDUCATION BOARD. See UNIVERSITIES AND COLLEGES.

GENETICS. See ZOOLOGY.

GEOGRAPHICAL SOCIETY, AMERICAN. A society established in 1852 for the furtherance of geographical research. From November, 1917, to December, 1918, it was the headquarters of the body of experts known as the Inquiry, which attended the Peace Conference and served on various territorial and economic commissions. A survey of the boundary between Guatemala and Honduras was undertaken in 1919. A technical study was desired by the governments as the basis for a recommendation by the Secretary of State for a final boundary in the disputed region. The programme of the Society in 1920 consisted of a plan of intensive research in the geography of Hispanic America. This programme was advanced satisfactorily in 1921. The results will include monographs, articles, hand books, and maps; among the maps is the millionth map of Hispanic America in approximately 100 sheets. Plans were adopted in 1921 for the foundation of a School of Surveying, to train men in modern methods of geographical survey; the course is to be eighteen months in length and to be open to properly qualified students. Mr. E. L. G. Joerg of the Society's staff went on a mission to Europe for six months in 1921 to study the status of geography in European universities and geographical institutes. His report on the results of his journey was to be printed as one of the numbers in the Research Series. The Society was able to assist the United States Department of Justice during the year in the study of the Red river boundary, which is in dispute between the States of Texas and Oklahoma. The Society publishes a quarterly magazine, the *Geographical Review*. This is a scientific periodical giving the latest information in the fields of geographical research and exploration. It also contains a record section dealing with the geographical events throughout the world, and a review section covering the whole field of geographical literature. In addition there is published a *Research Series* consisting of monographs of which normally one each year is sent free of charge to each Fellow of the Society. The officers in 1921 were President, John Greenough; Vice-Presidents, James V. Ford and Philip W. Henry; Foreign Corresponding Secretary, C. Redmond Cross; Recording Secretary, Hamilton F. Kean; Treasurer, Henry Parish. Headquarters are maintained at Broadway at 156th Street. Director, Isaiah Bowman.

GEOGRAPHIC SOCIETY, NATIONAL. A national scientific organisation, with head-

quarters in Washington, D. C., founded in 1888 "for the increase and diffusion of geographic knowledge"—the former through its expeditions and the latter principally through its organ, *The National Geographic Magazine*; through the schools of the country; and through its bulletin service for the press. During the year 1921 the Society and its members contributed \$47,200 toward the purchase of 960 acres of California forests filled with sequoias—640 acres in the Martin tract and 320 in the Mitchell tract. The second expedition into the Chaco Canyon country to excavate the ruins of Pueblo Bonito spent the season in the field under the leadership of Neil M. Judd. Evidence was found indicating that the ruins are at least a thousand years old. The principal structure was a colossal apartment house, as large in floor space as the United States Capitol, and with more than 300 rooms on the first floor. It is believed to have been five stories high; portions of the fourth story walls are now standing. The gradual excavation of the place and the restoration of the cultural objects found in the ruins of the Beautiful Village promise to retrieve the unwritten record of its inhabitants and to establish their true relationship to the human history of the New World. Arrangements were made for a third expedition to continue the work at Pueblo Bonito. Photographic expeditions were sent to Dalmatia and Greece, Central and South America, Scandinavia, Spain, and Central Europe. Dr. Robert F. Griggs, leader of the Society's six expeditions to Mt. Katmai, Alaska, made his final report on the sixth and last expedition. The several Katmai expeditions resulted in the discovery of the Valley of Ten Thousand Smokes, made a National Monument by the United States Government; the ascertainment of the sequence of events in that region which culminated in the greatest volcanic eruption of modern times; and the accumulation of a vast amount of scientific data that throws new light on many phases of the problem of volcanology. The Society announced the foundation of a series of Memoirs, which will contain both accounts of the activities of the Society's expeditions of interest to the general reader, and technical papers intended for specialists in the various fields of science covered. The first number will be devoted to the Mount Katmai expeditions. The membership of the Society at the beginning of 1922 had reached a total of 700,000. The officers and editorial staff are: Gilbert Grosvenor, President and Editor; Henry White, Vice-President; John Oliver LaGorce, Vice-President and Associate Editor; O. P. Austin, Secretary; George W. Hutchi-

son, Associate Secretary; John Joy Edson, Treasurer; Frederick V. Coville, Chairman Committee on Research; Edwin P. Grosvenor, General Counsel; William J. Showalter, Assistant Editor; Ralph A. Graves, Assistant Editor; Franklin L. Fisher, Chief of Illustrations Division; J. R. Hildebrand, Chief of School Service.

GEOLOGY IN 1921. The stimulating and the depressing influences of the war were still manifest in the science of geology. On the one hand the political side of geology received great attention while on the other the depression in the mining industry had its reflection in the science of applied geology.

The interest in political geology was evidenced by numerous works pertaining to it that came out during the year. Of these three may be said to stand out in marked prominence. The first is the *World Atlas of Economic Geology*, issued by the United States Geological Survey, which is a quantitative study of the distribution of natural wealth among the various nations of the world. It will be of immense value as a reference work for economists and others though it lacks a good discussion about the effects on this distribution.

The second work, Professor Leith's *Economic Aspects of Geology* while slightly less statistical is much more philosophical in its treatment. In addition to the fact of distribution there is also a discussion as to the origin of various natural resources, then political effect, and the financial control of the mineral resources of such countries as South America. This matter was before the public eye chiefly owing to the attempts of British and American interests to obtain exclusive rights in certain regions with resulting controversies. The excellence of Britain's position as financial controller of many of the rarer metals whose use has become so important in recent years is clearly demonstrated. The general excellence of the position of the United States is also shown, but her lack of certain minor things as tin, nickel, and platinum which are so indispensable in certain of the arts, makes the reader wish that these defects could be remedied. Leith does not confine his discussion to deposits but also considers the economic geologist, his preparation, his purpose, and the ethics of his profession. This latter, the ethics of economic geologists, is a matter of great importance for the future well-being of the profession and for the esteem in which the public will hold it.

The other work is a series of short monographs by various authors on the mineral resources of the British Empire and are intended to spread information among the British public as to the extent and distribution of the Empire's resources. They are concise and well written for the most part, being accurate without being pedantic.

On the more academic side there were published a number of works, both theoretical and descriptive, of interest and importance. The post-humous work of Barrell on the *Relation of Subjacent Igneous Activity to Regional Metamorphism* embodies an important principle, namely, that the igneous invasion is a primary cause of intense metamorphism rather than the metamorphism being caused by pressure and folding alone. Hobbs on the other hand in *Earth Evolution and Its Facial Expression* shifts the emphasis from igneous activity to dynamic action and supports the thesis that igneous activity is very ephemeral

and is confined within a zone a comparatively few thousand feet below the earth's surface. His ideas which are based on volcanic phenomena seem to have been formed without sufficient consideration of batholithic intrusions and in particular of the depths at which they originate. His ideas and conclusions are most interesting and are not to be dismissed without consideration.

Grabau's *Historical Geology* was published incorporating the author's ideas of replacing overlap and change of lithologic facies and applying them to the interpretation of the geologic record. The book is profusely illustrated and has, in particular, some novel and interesting palaeogeographic maps.

Concerning geological technique Holmes published *Petrographic Methods and Calculations* which contains descriptions of the usual microscopic methods and in addition a discussion of the investigation of the constitution of detrital sediments and the application of the data obtained to geological problems such as the discrimination of molding sands from other sands without trial. This field has as yet been almost untouched.

On the descriptive side the outstanding work was Reed's *Geology of the British Empire* which places a concise account of the geology of Britain's colonies and reference to the original articles in a handy form which makes it useful to a great variety of readers.

GEORGETOWN UNIVERSITY. A Roman Catholic institution of the higher learning at Washington, D. C.; founded in 1789. In the fall session of 1921 there were 2471 students enrolled and the faculty numbered 264. The Riggs Library contained 120,000 volumes and the Hirst Library, 8000 volumes. President, J. B. Creeden, S. J., Ph.D.

GEORGE WASHINGTON UNIVERSITY. A non-sectarian co-educational institution of the higher learning at Washington, D. C.; founded in 1821. In the fall session of 1921 there were 4164 students enrolled, of whom 1945 were in Columbian College; 914 in the Law School; 502 in the Engineering College; 332 in Teacher's College; 299 in the graduate departments; 151 in the Medical College; and 21 in the School of Pharmacy. In the summer school the enrollment was 1558 of whom 868 were in arts and sciences and the rest in law. The faculty numbered 200, and 20 were added in the course of the year. The total income during the year was \$474,417. The library contained 55,000 volumes. The largest single gift of the year was the bequest of a valuable piece of real estate from the late Gen. Maxwell Van Zandt Woodhull. President pro tem., Howard Lincoln Hodgkins, Ph.D.

GEORGIA. POPULATION. According to the report of the census of 1920, there were 2,895,832 residents in the State, Jan. 1, 1920, as compared with 2,609,121 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	4,665,000	69,975,000	\$37,087,000
	1920	4,393,000	65,895,000	69,190,000
Oats.....	1921	412,000	8,652,000	5,537,000
	1920	344,000	7,224,000	7,802,000
Wheat.....	1921	138,000	1,449,000	2,536,000
	1920	124,000	1,240,000	2,976,000

Crop	Year	Acreage	Prod., bu.	Value
Tobacco.....	1921	14,000	17,896,000	1,974,000
	1920	22,000	13,200,000	4,884,000
Hay.....	1921	712,000	2,629,000	9,881,000
	1920	679,000	2,552,000	12,878,000
Peanuts.....	1921	202,000	133,320,000	3,333,000
	1920	224,000	160,832,000	8,042,000
Potatoes.....	1921	23,000	1,725,000	2,846,000
	1920	22,000	1,628,000	3,386,000
Sweet potatoes.....	1921	146,000	12,410,000	7,818,000
	1920	132,000	12,276,000	11,908,000
Cotton.....	1921	4,140,000	2,840,000	69,720,000
	1920	4,900,000	2,145,000	108,257,000
Sorg. syrup.....	1921	37,000	3,478,000	1,391,000
	1920	35,000	3,290,000	3,422,000
Sugar cane.....	1921	61,100	7,322,000	.....
	1920	53,100	9,697,000	.....

¹ Pounds. ² Tons. ³ Bales. ⁴ Gallons.

DRAINAGE. The total works completed by drainage enterprises to Dec. 31, 1919, comprised 276.8 miles of open ditches, and the additional works under construction on that date were 79.9 miles of ditches. No tile drains were included in the plans of improvement undertaken by the operating enterprises. The figures given do not include drains or levees installed by individual farm owners supplemental to the works of the enterprises nor the works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. There are no pumping districts for land drainage in Georgia. The principal crop grown on the drained land in the drainage enterprises was corn; the crop of second importance was oats.

DRAINAGE ON FARMS		Amount	Per cent of total
Number of all farms in the state.....		310,732	100.0
Farms reporting land having drainage.....		15,121	4.9
Farms reporting land needing drainage.....		34,337	11.1
All land in farms.....	acres..	25,441,061	100.0
Improved land in farms.....	acres..	13,055,209	51.3
Farm land reported as provided with drainage.....	acres..	274,698	1.1
Farm land reported as needing drainage.....	acres..	1,819,611	7.2
DRAINAGE ENTERPRISES			
Approximate land area of the state.....	acres..	37,584,000	100.0
All land in operating drainage enterprises.....	acres..	65,452	0.2
Improved land.....	acres..	29,753	0.1
Timber and cut-over land.....	acres..	10,165	(1)
Other unimproved land.....	acres..	25,544	0.1
Total capital invested in and required for completion of operating enterprises.....		\$1,098,239	100.0
Capital invested in these enterprises to Dec. 31, 1919.....		\$794,585	72.4
Additional capital required to complete these enterprises.....		\$303,654	27.6

¹ Less than one-tenth of 1 per cent.

MANUFACTURES. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. A comparative summary for the State, 1914 and 1919, follows:

	Census		Per cent of increase 1914-19
	1919	1914	
Number of establishments.....	4,803	4,639	3.5
Persons engaged in manufactures.....	141,080	118,565	19.0
Proprietors and firm members.....	4,777	4,443	7.5
Salaries employees.....	12,803	9,661	32.5
Wage earners (average number).....	123,500	104,461	18.2
Primary horsepower.....	436,804	357,403	22.2
Capital.....	\$448,932,000	\$258,326,000	73.8
Services.....	127,565,000	49,960,000	155.4
Salaries.....	25,525,000	11,822,000	115.9
Wages.....	102,040,000	38,128,000	167.6
Materials.....	439,869,000	160,089,000	174.8
Value of products.....	693,556,000	253,271,000	173.8
Value added by manufacture (value of products less cost of materials).....	253,687,000	93,182,000	172.2

TRANSPORTATION. In 1921 there were 9689.77 miles of steam railway in actual operation.

EDUCATION. The total school population in 1920 was 840,861; white, 471,754; colored, 369,107; enrollment, 679,747; white, 418,246; colored, 261,501; teachers: white, 10,590; colored 4,582; average white salary, \$75.68; average colored salary, \$36.12; total expenditures, common higher schools, \$9,449,986.24.

FINANCE. Cash balance, Jan. 1, 1920, \$909,625.64; receipts for 1920, \$11,170,500.88; expenditures for 1920, \$11,055,325.37; cash balance, Jan. 1, 1921, \$1,024,801.15; bonded debt, \$5,720,202.

LEGISLATION. Among the laws passed in the legislative session of 1921 may be mentioned the following: Acts to promote the intelligent marketing of agricultural products; to prohibit all aliens or non-residents from storing or keeping dangerous explosives and to regulate the purchase, use, and sale of explosives; to create a State board of forestry; to amend the motor vehicle law and regulate speed on streets and highways; to provide for an occupation tax on sellers of gasoline; to provide for a joint committee to consider tax measures, including income tax bill; to amend school laws to provide for Bible reading.

OFFICERS. Governor, Thomas W. Hardwick; Secretary of State, G. L. McLendon; Treasurer, William J. Speer; Attorney-General, George M. Napier; Superintendent of Schools, M. L. Brittain; Adjutant-General, J. Van Holt Nash.

JUDICIARY. Supreme Court: W. H. Fish, Marcus W. Neck, Samuel C. Atkinson, H. Warner Hill, S. Price Gilbert, J. K. Hines.

GEORGIA, REPUBLIC OF. Formerly a part of the Russian empire; after 1918 an independent republic; situated in Transcaucasia between the Caspian and the Black seas; bounded on the

north by Caucasus, on the east by Azerbaijan, and on the south and southwest by Armenia and Turkey. Capital, Tiflis. It includes the following divisions: Tiflis, Kutais, Sukhum, Zakathali, Ardahan, Olti, and the southern part of the Black sea district. Area, variously estimated at from 32,769 to 35,600 square miles; population in 1915, estimated at from 3,053,345 to 3,176,156. The chief cities are: Tiflis, 346,766; Kutais, 85,151; Sukhum, 61,974; Poti, 20,731. The ultimate destination of Batum which by the treaty of May 25, 1920, had been conceded to Soviet Russia by Georgia was not determined in 1921 and was held by the Turks. Elementary instruction is free and compulsory for children between the ages of five and eleven. The university at Tiflis, founded in 1918, had 45 professors and 1500 students. No later figures in respect to production were available than those given in the preceding YEAR BOOK. See the preceding YEAR BOOK also for an account of the racial composition and general economic conditions of the country. The military system is based on both voluntary and compulsory service, the national guard being constituted on the former principle, and the regular army on the latter. The movement for independence started after the Bolshevik revolution in 1919. Georgia together with Armenia and Azerbaijan set up an independent Transcaucasian republic which refused to recognize the Bolsheviks, and proclaimed its independence, April 22, 1918. The three component parts of this new federation separated soon afterwards, and Georgia proclaimed its independence, May 26, 1918, by its national council, which had been chosen by the national assembly of Georgia. The constituent assembly ratified this act of independence, March 4, 1919, and the government was recognized *de jure* by the Allies, Jan. 27, 1921. The constituent assembly which had been elected on the basis of universal suffrage for both sexes, and direct equal secret and proportional voting was engaged in 1921 in the preparation of a constitution. During the interval executive power was in a ministry chosen from the constituent assembly, the head of the republic being the president of the ministry. The ministry was responsible to the constituent assembly which also nominated a senate with power of control over all officials of the state. The Socialist Democratic party was dominant in both the constituent assembly and in the government, being the party of the working classes and the peasantry. President of the ministry in 1921, Noah Jordania.

Conditions of great distress were reported in the closing months of the year, by the exiled leaders of the government that had been overthrown. According to these accounts the country was suffering from famine and disease, and from misgovernment. It was reported that the Russian invaders had stripped the country bare and that the government was highly oppressive, inflicting many executions and imprisonments. Similar reports also appeared in the Paris press. Among other charges against the Bolsheviks it was said that in spite of the great distress resulting from famine they had made wholesale requisitions of grain. It was also said that a large part of the population were hostile to the new government. In November the arrest of a delegation of workmen who were sent to protest against the severity

of the Soviet rule was reported. On the news that they were imprisoned in a fortress the workmen in Tiflis went on strike and the students of the universities there joined in a movement of protest, which was put down by the Bolshevik authorities after making about 2000 arrests.

GEORGIA, UNIVERSITY OF. A State institution of the higher education at Athens, Ga.; founded in 1901. There were 1230 students enrolled in 1921 and the faculty numbered 90. The library contained 62,000 volumes. President, David C. Barrow, LL.D.

GEORGIA SCHOOL OF TECHNOLOGY. A State institution of higher technical education at Atlanta, Ga.; founded in 1888. There were 1850 students enrolled for the fall session of 1921 and the faculty numbered 100. The income from State appropriations and fees was \$230,000 and the library contained 15,000 volumes. President, K. G. Matheson, LL.D.

GERHARDT, ELENA. See *Music, Artists, Vocalists.*

GERMAN COLONIES. The oversea possessions of Germany were completely conquered by the Allies before the end of the war. In Africa they consisted of the following colonies: German East Africa, German Southwest Africa, Kamerun, and Togo; in the Pacific they were: New Guinea, including all the territories held by Germany in the Western Pacific, namely, Kaiser Wilhelm's Land, the Bismarck Archipelago, the Caroline Islands, the German Solomon Islands, Marshall Islands, the Pelew Islands, Marianne or Ladrone Islands (with the exception of Guam), and the island of Nauru; also German Samoa, and in the Far East, Kiaochow. Total area, 1,140,117 square miles; total population, 13,253,000. Their distribution and status were determined by the Treaty of Versailles. For the discussion to which the subject gave rise, see the article **WAR OF THE NATIONS** in this and preceding YEAR BOOKS. According to the decision of the Supreme Council, May 7, 1919, the mandates for the German colonies in Africa were distributed between France and Great Britain, and the details were completed in the Franco-British agreement of July 10, 1919. See the titles above mentioned and also the article, **TANGANYIKA TERRITORY.** For the disposition of the Pacific colonies of Germany, see **GERMAN NEW GUINEA; GERMAN SAMOA; KIAOCHOW; and WAR OF THE NATIONS.**

GERMAN EAST AFRICA. A former possession of Germany, lying south of British East Africa and extending from Lakes Victoria Nyansa, and Tanganyika, and Nyasa to the Indian ocean. It was overrun by British and Belgians during the war, and passed under administrative control of Great Britain and Belgium under mandate of the League of Nations, the British portion being known as Tanganyika Territory (q. v.). The Belgian sphere including provinces of Ruanda and Urundi is under a royal commissioner of the Belgian government with headquarters at Kigali.

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. See **EVANGELICAL SYNOD OF NORTH AMERICA.**

GERMAN LANGUAGE. See **PHILOLOGY, MODERN.**

GERMAN LITERATURE. The year 1921 has barely differed from those before the war in the number and character of the books published in Germany. The constantly reiterated complaint

about economic depression and the stress of poverty sounds strange to the ear, when the eye surveys the vast array of books on the shelves devoted to new publications and discovers among them not a few with elaborate illustrations and expensive bindings. The paper shortage seems certainly to have been relieved, for the quality of the material that has gone into their making is no longer inferior to that used before the fatal year 1914.

The number of new plays staged in Berlin, Leipsic, Dresden, Hamburg, Vienna, and other cities of Germany and Austria also indicates normal conditions. Though playwrights and actors may be underpaid, the crowds that fill the playhouses must certainly fill the pockets of the managers. Nor do the various foundations that offer annual prizes for new plays seem to lack funds to carry on their work of encouragement and reward.

FICTION is as usual numerically far ahead of other departments of literature. Among the names on the title pages of recent publications are some veterans of the German book world. Foremost among them is Adam Müller-Guttenbrunn, the Austrian, who has added a novel with the poet Lenau as hero to the long list of his works; the story is called *Dämoniache Jahre*. The Swiss novelist J. C. Heer has published two new books: *Joggeki*, with the subtitle *Die Geschichte einer Jugend* seems to be autobiographical and it has probably for that reason found an astonishingly large sale; forty-seven thousand copies within a few months. The other book is entitled after its hero Nick Toppeli and bids fair by its homely atmosphere to be equally well received. One of the most popular and prolific novelists of Germany, and one well known to German readers in America through his lectures in this country some ten years ago, is Rudolf Herzog. He has three new volumes to his credit: the novel *Die Buben der Frau Oplerberg* and the books of short stories entitled respectively *Der alten Sehnsucht Lied* and *Es giebt ein Glück*. Georg Herrmann, the analyst of the soul of old Berlin, whose mid-century heroine *Jettchen Gebert* is a figure in the gallery of German fiction not easily forgotten by readers of that book, has written a new novel called *Schnee*. Wilhelm Schmidtbonn, better known as a dramatist, is the author of a story which deals with dogs and is entitled *Die Flucht zu den Hülflosen*. Karl Goldmann has also written a dog story; it is called *Numa*. The brother of Gerhart Hauptmann, Carl, published a novel *Drei Frauen*, which as all of his works is psychologically interesting, but written in a very irritating style. Wilhelm Meyer-Förster, the author of *Ali Heidelberg* has written *Die liebe der Jugend*, Richard Huldshiner, who is remembered by his *Stille Stadt*, but appears rarely on the book market, has a new volume; *Beatus, aus dem Buche eines Lebens*. Jakob Schaffner, a Swiss novelist, who also resists the temptation of rapid production, has written *Kinder des Schicksals*. Emil Lucka's *Heiligenart*, Otto Soyka's *Der Selen-schmied*, Franz Nabl's *Die Galgenfrist*, Georg Wasmers *Die Gärten vor der Stadt*, Rudolf Huch's *Das unbekannte Land*, Bernd Isemann's *Klotilde*, Oskar Loercke's *Der Oger*, and Otto Flake's *Nein und Ja* recall previous works of their authors almost forgotten in the enormous output of German fiction. Norbert Jacques, a native of

Luxembourg, who chose to be rabidly Teutonic at the outbreak of the war, has chosen a neutral topic for his story of adventure *Die Frau aus Afrika*. Victor Auburtin, who before the war attracted attention by a slim volume of short sketches, delightfully French in style, has published a new book, called *Pfauenfedern*. Julius Ludassy is the author of a Viennese story: *Der Turm der Liebe*. Walter von Molo's *Das Volk wacht auf* is like most of his recent works strongly nationalistic. Zdenko Kraft's *Liebestod*, a Wagner novel, Hans Schottler's *Malthus*, called a novel of the future, and Albrecht Schaeffer's *Gewaltiger Tod*, fairy tales in twelve lunar phases, possess some features of interest. Franz Werfel, a writer of lyrics and plays of somewhat radical tendency, is the author of a novel *Der Spielhof*. There have also appeared novels and short stories by Walter Hauch, Paul Lange, Julian Karwath, Oswald Pretzmann, Werner Jansen, Wilhelm Scharrelmann, Frank Thiess, Leo Perutz, Bruno Ertler, Adolf Koelsch, and Kurt Münzer. Among the women novelists the name of Isolde Kurz is always welcomed; her new book of stories is called *Legenden*. Marie Eugénie delle Grazie, the Austrian poet, dramatist, and novelist, has published *Der Liebe und des Ruhmes Kränze*. Elisabeth Heyking, whose *Beiefe die ihn nie erreichten* had a sensational success shortly after the Boxer rebellion, will hardly add to her reputation by her new book.

DRAMA. Of the numerous new plays that saw the footlights during the past season none stand out as significant dramatic events. Gerhart Hauptmann seems long ago to have reached the zenith of his creative power. Hoffmannsthal owed his greatest success to Richard Strauss, whose musical setting of *Electra* won far greater appreciation than the original drama. Sudermann, prolific as ever and keen to utilize the feeling of the moment, goes on writing patriotic dramas, but even they do not seem to have as powerful an effect upon the people as did his early works. His patriotic series is entitled *Das deutsche Schicksal* and the three plays are *Heilige Zeit* and *Opfer*, both in four acts and *Notruf* in five. Gerhart Hauptmann's interest in Astec subjects has given us *Indipohdi*, originally published in the *Neue Deutsche Rundschau* and now available in book form. His latest play *Anna* has fallen short of his admirers' expectations. Hofmannsthal has written a three-act comedy *Der Schwierige* and has made a new German version of *Everyman*; *Jedermann*. A posthumous work of the late Richard Dehmel is *Die Götterfamilie*, labeled "cosmopolitan comedy." Another posthumous play is Frank Wedekind's *Die junge Welt*. Heinrich Lilienfein, who some years ago was very warmly acclaimed as a new star in the world of drama, has been unable to repeat his first success. His five-act play *Die Überlebenden* is a drama of contemporary Germany. The late Carl Hauptmann's interest in Russian themes, evident in much of his fiction, has culminated in a drama entitled *Der abtrünnige Zar* and labeled "legend in six scenes." Among the younger men Franz Werfel is one of the most striking personalities. Of radical tendencies, both in his philosophy as in his aesthetic principles, he is considered by not a few critics as a fair representative of the "future." His new play is entitled *Der Spiegelmann* and is attracting a

great deal of attention. Another representative of the younger generation, Carl Sternheim, cultivates a cynical attitude which unpleasantly colors most of his work. His latest work is a three-act comedy *Zeitgenossen*. The Austrian poet Anton Wildgans has begun the publication of a dramatic trilogy with a *Cain* which is to be followed by *Moses* and *Jesus*. Friedrich Seebrecht, whose name has previously appeared in the annals of the drama, is the author of a play on the old and ever fascinating theme of the Wandering Jew: *Ahasver*. Eberhard König, whose name is also remembered from past seasons, had considerable success in Nuremberg with the first performance of his poetical drama: *Wieland der Schmied*. Paul Bourfeind had two premières to his credit: *Völkerfrühling*, a play of to-day, and *Der Kaiser*, a drama with Giordano Bruno as hero, which had considerable success in Cologne. Karl Röttger is the author of a drama in three scenes *Die Heimkehr*, which he calls "legend." A comedy by Robert Walter *Die Geburt der Narren* had a successful first performance in Hamburg. The same city also acclaimed Karl Küchler's *Das Gastmahl der Liebe*, a three-act play. Carl Röseler's three-act comedy *Der pathetische Hui* is not on the level of his earlier works. Rural dramas are rare in German literature of the present; hence Elisabeth Römmling's peasant drama in four acts with an epilogue, "Der Hof," received some attention when given at the Burgtheater in Vienna. The dialect comedy in three acts *De hillige Hannes* by Hans F. Blanck, which had its initial performance in Hamburg, owed its success to the same fact. A Baltic tragedy by Otto Brüer, *Heilandstur*, is another play of distinctly local atmosphere. Finally there must be mentioned the three-act drama *Orpheus und Eurydike* by Oscar Kokoschka, the poet-painter, which was given at Frankfurt but is too blatant a product of his æsthetic idiosyncrasies to be seriously considered.

LYRIC POETRY. Arno Holz, who some years ago set out to revolutionize the poetry of his country, appears as the author of a volume called *Die Blechschmiede* with the sub-title "Pandinium, Pandæmonium, Panmysterium." Christian Morgenstern, after some years of silence has sent out two books: *Ein Kranz* and *In Phantia's Schloss*. Cesar Flaischlen's usual New Year's publication was entitled *Im Schloss der Zeit*. New volumes by Ricarda Huch, Hedda Sauer, and Agnes Miegel give evidence of their authors' undiminishing creative power. The young Austrian, Albert Ehrenstein, has also set forth a new book of poems: *Gedichte*. Other lyrical volumes are Peter Baum's collected poems, under the title *Baum, Feld und Wald*, Johann Lindner's *Gott, Erde, Mensch*, Waldemar Bonsels' *Das Feuer*, Hans Brandenburg's *Stimmen* and Victor Meyer-Eckhardt's *Der Bildner*.

ESSAYS, MEMOIRS, ETC. The physician-essayist Carl Ludwig Schleich has published a volume of reminiscences *Lebenserinnerungen* which cover the years from 1859 to 1919. Annette Kolb, a writer of French and German origin, who at the beginning of the war created a sensation by publicly declaring her inability to side with Germany, is the author of *Zarastro*, a volume of essays with the sub-title *Westliche Tage*. Anton Buchner has written a book on *Judas*, offering a "new" interpretation of the character. Rudolf Eucken's name figures on the title-page of rem-

iniscences: *Lebenserinnerungen*. One of the most interesting books of this kind is the posthumous book by Otto Braun, the son of the distinguished novelist Lily Braun. The young man fell at the front and the book which gives evidence of unusual precocity is entitled *Aus nachgelassenen Schriften eines Frühvollendeten*. Stefan Zweig, dramatist, poet, and translator of Verhaeren and Romain Rolland, has published a biography of Marcelline Desbordes. Richard Specht's book on Richard Strauss is a commendable contribution to biography and musical history. Alexander von Gleichen-Russwurm has sent forth another of his delightful books of reflections: *Narrenweisheit*. Ernst Lissauer, the author of the notorious *Hymn of Hate*, offers a warm tribute in prose and verse to Anton Bruckner, the composer, under the title *Gloria Anton Bruckners*. *Der Expressionismus* is a new book by Paul Fechtel.

LITERATURE, MUSIC, ART. Heinrich Bischoff has published a critical estimate of Lenau's poetry: *Nikolaus Lenau's Lyrik*. Paul Fechter is the author of a book on Frank Wedekind. Ella Spiess writes about the Austrian poet Jakob Julius David who died some years ago before attaining perfect development of his indisputable poetical gift. Emil Engelhardt pays tribute to Tagore, considering him as man, poet, and philosopher. Jacob Minor writes a volume of reminiscences of the Burgtheatre of Vienna under the title *Aus dem alten und dem neuen Burgtheater*. Karl Storck, long identified with the magazine, *Der Türmer*, has brought out a new revised edition of his history of music. Kurt Arnold Findeisen is the author of a volume of stories about musicians, called *Klaviergegeschichten*. Julius Bab has written a new volume of the drama called *Neue Kritik der Bühne*.*

TRANSLATIONS. The number of translations that appeared during the year is amazing. Only a few of them can be noticed here. They are Dostojewski's travel book *Reisebilder*, the poetical works of Adam Mickiewicz, E. Berthe's volume of Greek lyrics, Gorki's Recollections of Tolstoy. Schmidtbohn's translation of an old French Passion Play of the fifteenth century, and others. Oscar Wilde is continually being brought out in new translations. A rather curious volume, called *Das Herz des Feindes*, has been compiled by Karl Arne; it is an anthology of English war lyrics abounding in ludicrous mistakes. There have been translations of the recent books of Barbusse and Paul Reboux. A story by the Polish author Gabriele Zapolska has been published under the title *Die unberühmte Frau*. Otto Pick has sent forth a collection of Czech stories. Tolstoy, some new Russians, Ambrose Bierce, and Francis James have also been translated.

PRIZE CONTESTS. The Nietzsche-Archiv in Weimar has distributed three prizes of 1500 marks each among Georg Dehn, for a history of German art, Bruno Burch for a work on Immanuel Kant and Leopold Ziegler for a book called *Gestaltwandel der Götter*. The Keil foundation in Leipzig, commemorating the work of the founder of the *Gartenlaube*, has given a prize to Alfred Brust for his drama *Der ewige Mensch* and a book of plays: *Spiele*. Arno Holz has received 4000 marks for his *Blechschmiede*.

* New books on art are Max Deri's *Die neue Malerei* and Friedrich Markus Hübner's *Die neue Malerei in Holland*.

NECROLOGY. Among the writers who have died during the year are Carl Hauptmann, the gifted brother of Gerhart, who died February 4; Emil Hellbut, the art critic who died February 23; Franz Diederich, the poet, Ernst Ziel, the editor of the *Gartenlaube*, Otto Piper, author, editor and publisher of Munich, Max Kalbeck, poet and critic of Vienna, and Thaddäus Rittner, a dramatist, who had attracted no little attention during the recent seasons.

GERMAN NEW GUINEA. The name given to all the territories formerly held by Germany in the Western Pacific, including, Kaiser Wilhelm's Land, the Bismarck Archipelago, the German Solomon Islands, the Caroline Islands, the Marshall Islands, Marianne or Ladrone Islands (with the exception of Guam), the Pelew Islands, and the small island of Nauru. They were occupied by the Australians, Nov. 12, 1914. Under the Treaty the islands north of the Equator, namely, the Caroline, Marshall, Pelew, and Ladrone Islands were turned over to Japan under mandate; and those south of the Equator, the Bismarck Archipelago, the German Solomon Islands, and the former German possessions on the island of New Guinea were assigned to Australia under mandate of the League of Nations, Dec. 17, 1920. The possessions known under the title of German New Guinea were formerly administered at Rabaul, the capital, Kaiser Wilhelm's Land consists of the northern section of southeastern New Guinea with an area of about 70,000 square miles, including the adjacent islands. The population is variously estimated at from 110,000 to 530,000. (See the article **KAISER WILHELM'S LAND.**) The Bismarck Archipelago is situated between 141° and 154° E. longitude, and between the Equator and 80° S. latitude. The chief islands are: New Britain, formerly Neu Pommern; New Ireland, formerly Neu Mecklenburg; and Neu Hannover. The area of New Britain, the largest of these islands, is placed at 10,000 square miles; of New Ireland, at 4600. The population of all the islands has been estimated at 188,000. New Britain has about 50,000 inhabitants of whom in 1914, 600 were Europeans. There are a number of excellent harbors. The chief town is Rabaul, the former capital of the German possessions in the Western Pacific, and the present capital of the Bismarck Archipelago. New Ireland has about 28,000 inhabitants, and the chief town is Kawieng. The most important of the smaller groups of islands in the Archipelago is that of the Admiralty Islands. The Solomon Islands before the war were owned partly by Germany and partly by Great Britain. The German portion included the island of Bougainville, with an area of 3500 square miles and a native population of 15,000, and the smaller island of Buka. The chief harbor is Kieta on the island of Bougainville. The following table taken from the *Statesman's Year Book* of 1921 shows the principal details in the foreign trade of the former German possession of New Guinea for three years:

	1917-18	1918-19	1919-20
	£	£	£
Chief Imports:—			
Groceries.....	83,771	67,410	190,441
Hardware and machinery...	34,949	48,942	64,912
Drapery and boots.....	52,264	74,806	78,935
Tobacco.....	16,863	16,163	36,166

	1917-18	1918-19	1919-20
	£	£	£
Chief Imports:—Continued			
Wine, spirits, and beer.....	16,079	16,021	31,744
Oils and kerosene.....	16,199	14,032	23,834
Total Imports.....	258,040	271,861	506,767
Chief Exports:—			
Copra.....	369,837	244,314	745,057
Shell.....	19,424	14,065	51,843
Birds of paradise.....		100	34,133
Cocoa.....	11,159	8,464	15,530
Total Exports.....	404,504	269,666	849,422

GERMAN PROTECTORATES. See **GERMAN COLONIES.**

GERMAN SAMOA. A former German protectorate, comprising that portion of the Samoan group which lies to the west of 171° E. longitude including the islands of Savaii and Upolu, the largest in the group; assigned under mandate of the League of Nations to Great Britain, Dec. 17, 1920, and now termed the Territory of Western Samoa. Area, estimated at from 1210 to 1260 square miles; population, 1917, 41,128 (exclusive of military) of whom 1668 were whites and 2237 coolie laborers. Of the whites the British numbered 660. It was one of the regions that suffered most severely from the influenza epidemic in 1918, the deaths being placed at about 7500. Copra is the chief production, and cocoa, sugar, rubber, and cardamons are next. Imports in 1919, £291,368; exports, £532,500. Revenue for the year ending March 31, 1920, £95,022; expenditure, £96,314. Vessels entered in 1919, 77 of 34,273 tons; cleared 81 of 35,940 tons. The islands were occupied by the New Zealand forces, August 29, 1914, and surrendered by Germany under the Treaty of Versailles, 1919. The administrator at the beginning of 1921 was Colonel R. W. Tait. The question of New Zealand's administration over the former German possessions in Samoa was under consideration at Washington at the close of the year. The treaty of 1899 dividing the Samoan Islands among Germany, the United States, and Great Britain, contained the principle of equal trade treatment for the three Powers. Under New Zealand control the legislative council established in German Samoa by the New Zealand government had passed an act providing for a higher tariff on foreign imports than on those from New Zealand. This course led to protests as inconsistent with the arrangement of 1899.

GERMAN SOUTHWEST AFRICA. A protectorate administered by the Union of South Africa under mandate of the League of Nations, Dec. 17, 1920; formerly a German protectorate; lying between Angola and Cape Province of the Union of South Africa. Area, 322,400; European population, 1913, 14,830, of whom 12,292 were German and 1799, British. After the beginning of the war 6350 Germans were deported, but recent estimates indicated that the European population in 1919 had considerably increased, owing to the influx of South Africans, and it was placed in that year at between 16,000 and 17,000. Native population, estimated at 190,000, including the Ovambos who number about 100,000. Seat of the government is Windhuk. The principal races, other than the Ovambos are: the Hereros, Bastards, Bergdarmaras, Hottentots, and Bushmen. The Ovambos inhabit the northern region known as Ovamboland. The chief stock-raising people are the Hereros. Stock-raising is the principal occupation, and cattle in

1920 were estimated at 400,000, and sheep and goats at 2,225,000. Agriculture is impracticable without irrigation except in the northwestern part. The yield of the diamond mines in 1919 was 462,181 carats, valued at £2,081,863. Copper and tin are also worked, and marble is found. The foreign trade in 1919 was as follows: Imports, £1,135,116; exports, £1,679,534.

The following is an abstract of the estimated expenditure during the year ending March 31, 1922, compared with that for the year 1920-21:

<i>Expenditure</i>	<i>1920-21</i>	<i>1921-22</i>
	£	£
Administration.....	30,940	48,556
Agriculture.....	39,550	54,193
Audit.....	1,050	2,124
Customs and excise.....	1,250	2,943
Defense.....	3,200	750
Education.....	23,980	63,198
Irrigation.....	55,500	123,677
Justice.....	39,000	57,792
Lands, deeds, and survey.....	38,660	45,049
Mines.....	4,480	4,938
Native affairs.....	7,000	16,904
Posts, telegraphs, and telephones.....	53,930	65,000
Prisons.....	23,150	25,319
Public health.....	23,634	22,880
Public works.....	68,600	118,656
Southwest Africa police.....	182,750	187,800
Total ordinary expenditure.....	596,674	839,779
Extraordinary expenditure.....	303,000	446,750
Grand total.....	899,674	1,286,529

The estimate of revenue to be collected during the year 1921-22, as compared with that for 1920-21, was:

<i>Revenue</i>	<i>1920-21</i>	<i>1921-22</i>
	£	£
Customs.....	75,000	80,000
Excise.....	4,000	4,000
Posts, telegraphs, and telephones.....	40,000	40,000
Mining royalties, profits, and leases.....	800,000	680,000
Licenses, liquor, trading, arms, game, etc.....	12,000	12,000
Stamp duties and fees.....	5,000	6,000
Estate and transfer duty.....	5,000	4,000
Native taxes.....	200	600
Land revenue.....	15,000	13,000
Sales of Crown land.....	15,000	8,000
Forest revenue.....	300	300
Rents of Government property (houses and buildings).....	2,000	7,500
Fines and forfeitures.....	7,500	3,600
Departmental receipts.....	8,000	12,000
Miscellaneous.....	36,000	20,000
Total.....	1,025,000	891,000

South African forces captured the country from the Germans in 1915. German law was enforced until 1920 when the Union of South Africa established new regulations under martial law. After that civil courts were established and the troops were withdrawn. Administrator at the beginning of 1921, Gysbert Hofmeyr.

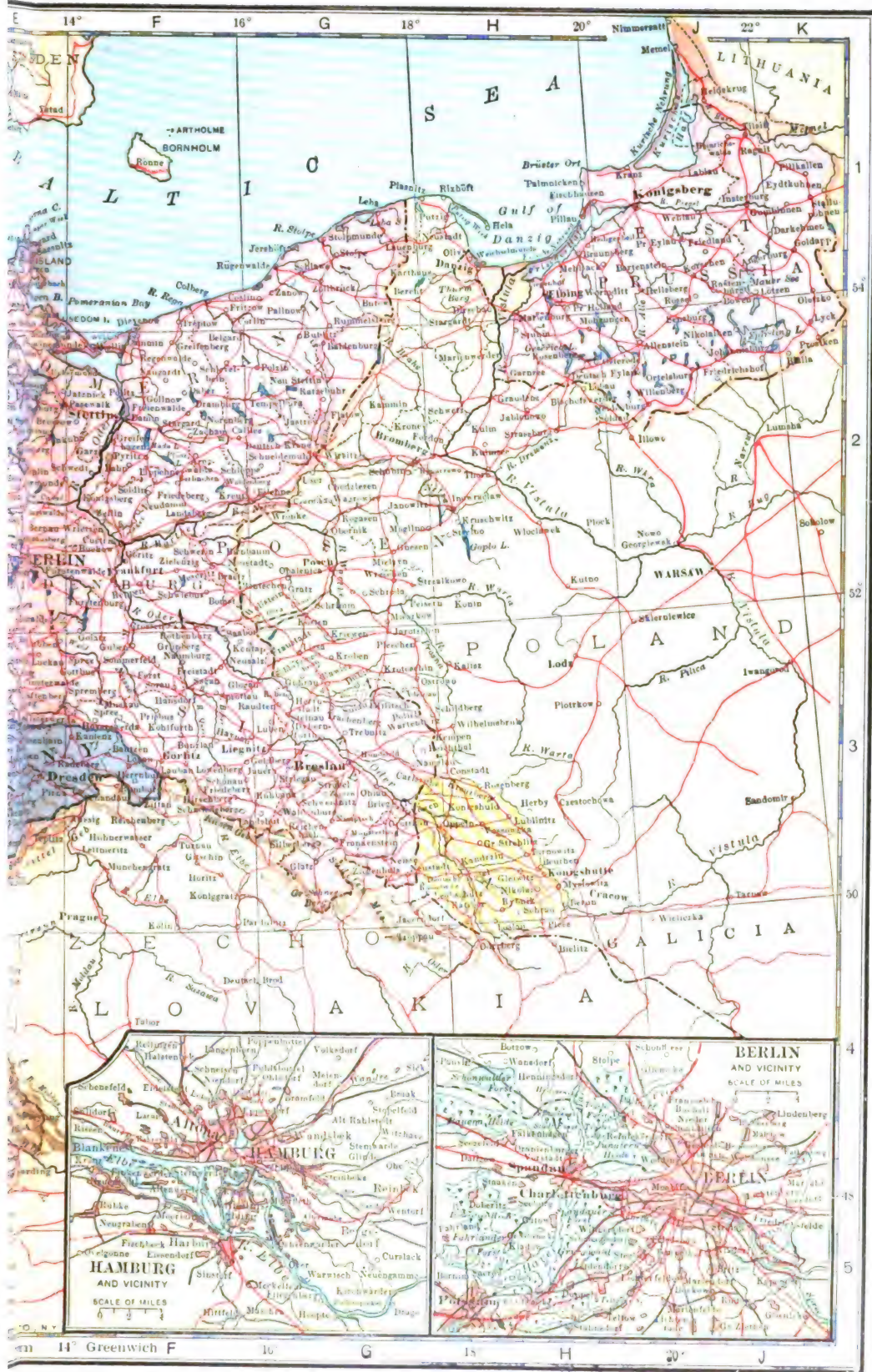
An important step taken during the year for the development of this region was the approval by the administrator, G. R. Hofmeyr, of the project for the construction by the South African Railways and Harbors Board of a new railway to run from Windhuk, the capital, in an easterly direction to Gobabis, a distance of about 132 miles. This new line was to be of the standard South African gauge (3 ft. 6 in.), and the estimated cost was put at \$3,600,000. Gobabis is one of the important settlements in the eastern portion of the Protectorate, with numerous fresh water springs in its vicinity, so that it is the centre of one of the few districts where agriculture is possible.

GERMANY. A republic set up after the overthrow of the German empire in the revolution of the closing months of 1918; organized under the constitution adopted July 31, 1919, and promulgated August 11, 1919; formerly the German empire, a constitutional monarchy consisting of 25 federated states and an imperial territory or Reichsland; situated in central Europe.

AREA, POPULATION, ETC. The former German empire in Europe had an area of about 208,825 square miles exclusive of the German part of Lake Constance and the North Sea lagoons, with a population estimated a month before the war, June 30, 1914, at 67,812,000. The latest official figures before the war were those of the census of 1910 which are given in detail in preceding **YEAR BOOKS**. According to the census of Oct. 8, 1919, the area of the German republic, including territory subject to plebiscite and the small districts assigned to Belgium, was 183,381 square miles and the population 60,900,197. The table below taken from the *Statesman's Year Book* of 1921 gives the area and population by states and density per square mile according to the returns of that census.

The losses under the Treaty of Versailles (June 28, 1919) were as follows: (1) Alsace-Lorraine, returned to France; (2) the larger part of West Prussia, ceded to Poland; (3) a part of eastern Silesia (Galicia) ceded to Poland; (4) a part of

<i>States of the Empire</i>	<i>Area English sq. miles</i>	<i>Population, Oct. 8, 1919</i>			<i>Pop. per sq. mile 1919</i>
		<i>Male</i>	<i>Female</i>	<i>Total</i>	
Prussia.....	114,739	18,046,439	19,679,579	37,726,018	327
Bavaria (with Coburg).....	29,501	3,394,270	3,746,063	7,140,333	242
Württemberg.....	7,629	1,195,144	1,323,629	2,518,773	330
Baden.....	5,817	1,051,405	1,157,098	2,208,503	379
Saxony, Kingdom of.....	5,789	2,168,065	2,495,233	4,663,298	805
Mecklenburg-Schw.....	5,068	318,184	340,759	658,943	130
Thuringia.....	4,546	712,474	795,551	1,508,025	331
Hesse.....	2,966	616,521	674,467	1,290,988	435
Oldenburg.....	2,482	250,623	267,142	517,765	209
Brunswick.....	1,418	226,400	254,199	480,599	338
Mecklenburg-Str.....	1,131	51,170	55,224	106,394	94
Anhalt.....	888	167,710	173,545	331,255	374
Lippe.....	469	71,117	83,201	154,318	329
Waldeck.....	433	31,065	35,867	66,932	153
Schaumburg-Lippe.....	181	22,148	24,209	46,357	254
Hamburg.....	160	493,260	557,069	1,050,359	6,564
Lübeck.....	115	57,539	63,029	120,568	1,048
Bremen.....	99	148,466	162,800	311,266	3,143
Total.....	183,381	29,012,000	31,888,197	60,900,197	332



Upper Silesia, to Czecho-Slovakia; (5) Eupen and Malmédy, to Belgium; (6) Memel, to the Allies; (7) Danzig, to the Allies. Of these Alsace-Lorraine was estimated at 5604 square miles with a population of 1,874,014; the Polish zone, 16,744 square miles with a population of 2,961,685; the part ceded to Belgium 386 square miles with a population of 60,924; Memel, 1057 square miles with a population of 140,746; Danzig, 794 square miles with a population of 330,252. The regions to be determined by plebiscite included: (1) The Saar basin which was to be placed under the government of the League of Nations and to determine its destination after a period of 15 years; (2) Schleswig which was to decide between Denmark and Germany; (3) regions in the southern part of East Prussia, in western Prussia, and in Upper Silesia. The area of the Saar basin is placed at 750 square miles with a population of 657,870. The Schleswig plebiscite was held in March, 1920, the region having been divided into two zones for the purpose, and the southern zone decided for Germany while the northern zone decided for Denmark. (See preceding YEAR BOOK.) The plebiscite in Upper Silesia was held in 1921 and is discussed under that title as well as in the article WAR OF THE NATIONS. The area under occupation by the Allies in 1921 was about 9650 square miles with about 7,000,000 inhabitants.

The rate of increase of the German population has been heavy though for the last few years the statistics are not available. For forty years preceding the war the annual rate of increase was over 1 per cent. In 1900 it was 1.51 per cent; in 1905, 1.46 per cent; and in 1910, 1.36 per cent. The cities with over 500,000 at the census of Oct. 8, 1919, were as follows: Berlin, 1,902,509; Hamburg, 985,779; Cologne, 633,904; Munich, 630,711; Leipzig, 604,380; Dresden, 529,326; Breslau, 528,260. No later figures for education were available than those given in preceding YEAR BOOKS, with the exception of figures for universities and the technical high schools. For the summer half year 1920 the universities with a total attendance of over 4000 were as follows: Berlin, 10,278 students and 509 teachers; Munich, 6879 students and 311 teachers; Leipzig, 5583 students and 257 teachers; Bonn, 5347 students and 208 teachers; Breslau, 4936 students and 209 teachers; Göttingen, 4313 students and 169 teachers; Frankfurt, 4213 students and 155 teachers; Münster, 4093 students and 121 teachers. The technical high schools had 19,862 students and 929 teachers. Other technical high schools included those of agriculture, mining, veterinary science, architecture, art and art-industry, commerce, textile manufactures, metal industries, wood working, naval architecture, navigation, and others. Altogether there were 23 universities in the empire in addition to lyceums with faculties of only theology and philosophy.

PRODUCTION. Over 90 per cent of the soil had been estimated before the war as productive, the arable land being placed in 1913 at an acreage of 65,143,000. The chief crops in 1920 with their acreage and total yield in metric tons were as follows: Wheat, 3,453,185 acres and 2,255,055 metric tons; rye, 10,813,117 acres and 4,971,800 metric tons; barley, 2,996,155 acres and 1,799,713 metric tons; oats, 8,109,180 acres and 4,870,126 metric tons; potatoes, 6,149,680 acres and 28,248,765 metric tons; beets, 817,435

acres and 7,964,024 metric tons; hay, 13,721,665 acres and 23,656,436 metric tons. The acreage under vines in 1919 was 172,907 and the production 38,307,610 gallons. Live stock, Sept. 1, 1920, were as follows: Cattle, 16,900,000; sheep, 6,630,000; swine, 14,220,000; goats, 4,870,000. Prussia is the main source of mineral wealth and the chief mining regions are Rhenish Prussia, Westphalia, and Silesia for iron and coal, the Hartz Mountains for copper and silver; and Silesia for zinc. No more recent figures for output are available than those given in preceding YEAR BOOKS. The centres of iron manufacture are in Prussia, Bavaria, and Saxony; textiles, Saxony, Westphalia, Silesia, Württemberg, Bavaria, Baden; silk, Rhenish Prussia and Baden; best root sugar, Prussia, Brunswick, Bavaria and other states; glass, porcelain, and earthen ware, Silesia, Bavaria, Saxony, and Thuringia; clocks and wooden ware, Bavaria and Württemberg; and beer in most of the states. No recent complete figures for manufactures were available.

ECONOMIC CONDITIONS. While the masses of the people and the government suffered from the general depression and from the depreciation of the mark, the large industries appeared to be prosperous. Under the leadership of the great industrial organizer, Hugo Stinnes, a high degree of effective industrial combination was attained, and a vast amount of new capital was invested in industry. This tendency had already shown itself during the preceding year. In January, 1921, the new capital invested during 1920 was reported at fourteen billions. Foreign trade had already shown a great increase in 1920. (See below.) The government voted an indemnity of \$12,000,000,000 marks to shipping companies for war losses, and the companies in turn engaged to build at least one-third of Germany's prewar tonnage within the next ten years.

In December unemployment was reported to be less serious than at any time after the armistice, the number of men out of employment being placed at about 300,000. Several serious strikes for higher wages occurred in November, involving large bodies of men, and in general they resulted in securing an increase of wages. Great activity in the machine industry was reported, and many of the plants although working double time were unable to fill the orders on hand. There was special activity also in the hardware, textile, and silk industries. In December the adverse trade balance and the fear of tariff restriction abroad were leading the government to a policy of control over export prices and the foreign trade office was endeavoring to compel payment of German exports in foreign currency. Crop indications at the close of the year were somewhat more favorable than for the year before in respect to wheat, rye, and potatoes. Perhaps the most extraordinary feature of the German situation was the remarkable growth of the merchant marine during the latter part of the year. Early in December the tonnage of German merchant vessels was placed as high as 1,000,000 tons, an increase of about 250,000 tons since July; and the shipyards were displaying great activity under government encouragement. Nevertheless far the greater part of Germany's foreign trade was still being carried in foreign vessels—according to some authorities, about 80 per cent.

COMMERCE. The following table from the

Statesman's Year Book of 1921 shows the imports and exports during the first three years before the war:

Years	Imports £	Exports £
1911.....	500,347,250	411,219,900
1912.....	550,856,600	454,976,450
1913.....	560,335,800	509,965,000

For the first time since 1913 complete foreign trade statistics were published by the government Statistical Bureau. They are summarized as follows by the United States Bureau of Foreign and Domestic Commerce: Germany's exports for 1920 amounted to 198,096,079 double centners (1 double centner = 220.46 pounds), while imports amounted to 188,366,261 double centners. The value of these exports was placed at 69,524,476,000 German paper marks. These figures did not include reparations deliveries under the terms of the Treaty of Versailles. The itemization of Germany's foreign trade, presented in the *Monatliche Nachweise*, gave import commodities, listed by double-centner weight, but without valuation, and export commodities by double-centner weight, with valuation in paper marks, as shown in the following table:

GERMAN IMPORTS AND EXPORTS IN 1920

Articles	Imports	Exports	
	Double centners	Quantity Double centners	Value Paper marks
Agricultural, animal, and vegetable products, including foodstuffs.....	65,625,129	14,095,778	3,835,812,000
Animal and vegetable spinning materials and manufactures thereof, including human hair, prepared feathers, fans, and hats.....	871,597	782,698	8,436,449,000
Brooms, brushes, and sieves.....	2,602	24,829	137,239,000
Caoutchouc goods.....	20,611	31,132	295,827,000
Chemical and pharmaceutical products, including dyes and dyestuffs.....	2,656,364	26,324,611	8,958,122,000
Clay goods.....	549,473	3,823,766	1,114,880,000
Glass and glassware.....	138,954	1,184,284	1,767,974,000
Goods prepared from bones, wood, cork, and other plant dissection.....	70,989	1,286,938	1,584,180,000
Leather and leather manufactures, including furs and goods made from animal waste.....	168,012	99,777	2,483,709,000
Machines, vehicles, and electrotechnical products.....	81,413	6,726,116	11,270,005,000
Metals:			
Coarse, and manufactures of.....	5,294,219	18,478,827	16,798,123,000
Precious, and manufactures of.....	163	2,530	972,942,000
Mineral and fossil raw materials, and mineral oils.....	111,398,942	118,479,877	5,040,789,000
Paper and pulp, and manufactures of.....	800,729	2,770,938	3,086,680,000
Stones and other minerals (excepting clay) and fossil material, manufactures of.....	236,292	3,184,214	413,171,000
Wax (prepared), paraffin, and related products, including soap, and other fatty substances, oils, and wax manufactures.....	411,890	81,991	117,982,000
Wickerwork and goods plaited from plants, excepting spinning fibres.....	10,337	46,312	95,367,000
All other articles.....	28,545	671,461	3,115,225,000
Total.....	188,366,261	198,096,079	69,524,476,000

The above figures show a great difference from prewar figures. The largest consumer in prewar times was Great Britain which took nearly 15 per cent of the German export; next was the former Austro-Hungarian empire with 11 per cent; next Russia including Poland, with about 9 per cent; next France and the United States each with about 7½ per cent; and next the Netherlands with about 7 per cent.

After the armistice and resumption of trade great changes took place. The neutral countries' markets were, of course, easier for Germany to regain, and the 1920 statistics show that the Netherlands imports from Germany increased from 7 per cent to almost 21½ per cent of the German total. Switzerland gained the second place, with 9½ per cent, followed by the new states of the former Austro-Hungarian Empire, with 8 per cent. Denmark, which in prewar days only took 2

per cent of the German exports, reached 6 per cent in 1920. Of Germany's former enemies the United States was the only country which so far had reached prewar figures, having taken more than 7 per cent of Germany's exports in 1920. The reason for this lay in the purchasing power of the dollar as compared with the depreciated currency of other allied countries. It must also be taken into consideration that the figures covered by these percentages represented value and not volume of goods.

FINANCE. At the beginning of November the 1921 budget expenditure was placed in round numbers at 114,250,000,000 marks. The receipts so far as could be anticipated at that time would amount only to 61,200,000,000 marks thus leaving a deficit of about 53,000,000,000 marks. The extraordinary budget of 1921 was expected to show an increase of 57,000,000,000 marks as compared with the increase of 49,200,000,000 marks, so the amount to be covered by loans in the financial year 1922 would go to the high figure of 110,000,000,000. Estimates for the financial year 1922 placed receipts at 97,000,000,000 marks, ordinary expenditures at 146,000,000,000 marks, extraordinary expenditures at 36,000,000,000 marks. No way out of the difficulty, according to the government, could be found unless

the Allies relaxed their terms, for the situation, bad as it had been, had become more serious as the result of the upper Silesian decision. The Minister of Finance, Andreas Hermes, on introducing new taxation measures in parliament, at that time admitted that they involved the heaviest burden that any people had been called upon to bear; but he said they were arranged in a manner to bear in a fair proportion upon property owners and consumers. The tax on property would mainly fall on fortunes for it was proposed that the assessment of fortunes be subject to periodical revision. The increase for this source was estimated by the Ministry at from 40,000,000,000 to 42,000,000,000 marks. This heavy tax burden, however, would not meet the obligations under the Allied ultimatum.

The direct taxes on property and income were as follows: First, taxes on incomes of individuals;

second, taxes on incomes of corporations; third, special taxes on the income of capital; fourth, emergency tax on fortunes; fifth, regular tax on fortunes; sixth, inheritance and succession duty; seventh, tax on the increments of fortunes. The income tax is progressive and leaves only a small minimum free—according to the act of March 31, 1920, 1500 marks but afterwards increased. The tax ranged from 10 per cent on amounts up to 24,000 marks beyond the minimum, through a so-called surplus tax of 20 per cent on every additional hundred marks, up to 25 per cent on incomes of 30,000 marks: Then to 30 per cent for incomes of 35,000 marks and upwards; to 35 per cent for incomes of 40,000 and upward and so on to incomes up to 400,000 at which point the tax was nearly 50 per cent. The corporation tax began with 2 per cent of dividends, etc., if they did not exceed 4 per cent of the capital and rose progressively to 10 per cent if the dividends exceeded 18 per cent of the capital. The revenue from corporation incomes was estimated in the budget of 1921 at 1,050,000,000 marks. The low figure of the corporation tax as compared with that of the income tax was due to the desire to avoid double taxation. Nevertheless the tax on corporations was regarded as insufficient in 1921. At all events a far greater number of new enterprises were changed into limited liabilities associations than in former years. This form of association had great advantages under the law and offered the means of evading tax provisions. Many tax measures were pending in 1921 including plans for taxing wealth and income, for taxing the movement of capital and values such as stock exchange transactions and for taxing commodities. The government taxation schemes were attacked from various points of view. In addition to the complaints of those classes that bore the burden directly there was a large volume of criticism from political economists, experts in finance, and Socialists. They were condemned as unjust and insufficient. The situation in fact was so confused that no measures proposed would have escaped criticism. A movement developed as a result of dissatisfaction with the government measures for the seizure of real values, which was supported by elements in both the socialist groups. According to this the government should share in those values of business that were not at the mercy of the fluctuating paper currency. A proportion of the profits should be paid to the government, the percentage proposed ranging from 20 per cent to 25 per cent. The government would be in the position of a holder of a mortgage and it might administer the property itself or issue notes against it or sell a portion of it. Such a claim was naturally opposed by the capitalist and landowning classes not only as certain to involve irritating government interference but as likely to pave the way to socialization. Nevertheless, extreme measures of some kind were necessary if national bankruptcy were to be avoided and it appeared that the government programme would be best yield hardly enough to cover the deficit in the ordinary administration expenses. In December the total yield from taxation for the next fiscal year was estimated at about 95,000,000,000 marks.

FINANCE: PUBLIC DEBT. In December the public debt of Germany was given at a little over

330,000,000,000 paper marks. The funded debt was given at about 90,000,000,000 marks, on which the government paid an interest averaging $4\frac{1}{2}$ per cent. Toward the end of the year the floating debt was increased by 9,000,000,000 marks, and amounted to 242,000,000,000 marks. This consisted of non-interest-bearing treasury bills issued to banks at a discount of 4 or 5 per cent. At the beginning of December it was estimated that the deficit for the fiscal year would amount to 161,500,000,000 paper marks of which 40,500,000,000 were attributed to the railway, post and telegraph deficit, and 120,000,000,000 to the reparation payments due by April 30, 1922.

FINANCE: DEPRECIATION OF THE MARK. Many reasons were given to account for the great fall in the value of the mark in the autumn. According to the Germans the main cause was the necessity of purchasing foreign securities in order to pay the Allies the first billion. The effect was not felt at once because the government had been obliged to distribute its operations over a considerable period. The assets of the Imperial Bank had greatly diminished. Germany was now obliged to purchase additional securities in order to provide for future payments. According to the Allies, while this was an important element, it was not the chief cause. The main point was the abnormal increase of paper circulation which by the middle of October had reached the formidable figure 88,000,000,000, and which in the course of a single week had increased 2,800,000,000. Aside from these reasons there had been an unbridled speculation in the market based solely on the depreciation of the mark. This speculation was carried to greater lengths in Germany than anywhere else. Anyone who had the means in Germany appeared to be purchasing right and left American dollars, Dutch florins, and Swedish crowns. German exporters, industrialists and merchants who sold German products abroad took good care not to bring their money back, but left it abroad by way of insuring themselves against possible bankruptcy and also in order to escape heavy taxes. There was thus a great class in Germany which was profiting from the situation and was really benefiting by the failure of Germany to keep her financial engagements. In France it was hinted that the depreciation of the mark was secretly aided by high finance and that the time might come when the government would ask the Allies how they expected Germany to pay their demands when the German money was worth nothing. With the falling of the mark, the better sort of industrial securities rose in value proportionately. There was a clear distinction in Germany between so-called gold values, that is to say, sound industrial stocks, bank stocks, real estate, etc., and paper values, that is to say, the government funds. Everybody tried to obtain the former and to get rid of the latter. As to the so-called gold values, the *Frankfort Gazette* presented the following comparison in October: Assuming that the total value of sound industrial stocks was represented in January, 1920, by the figure one hundred, the value had increased Dec. 31, 1920, to 189; by January, 1921, to 195; by Sept. 2, 1921, to 238; and by September 9, to 242. It was a question whether the government was taking sufficient measures against speculation and for the regulation of foreign securities. Another element in the situation was the effect of the

present system of taxation. It was tending to accelerate the depreciation of the mark. This system, conceived and applied under the Erzberger government in 1919 and 1920, laid a formidable tax on all properties in excess of 172,000 marks. The property tax on the whole admitted the levy of from 10 to 60 per cent. In spite of this tax, which amounted to semi-confiscation, there had been an accumulation of capital and a luxurious expenditure of wealth that had never before been surpassed. As a matter of fact this tax system was more or less fictitious and had reached only taxpayers who had fixed incomes. The law-makers did not perceive, or pretended not to perceive, that the progressive depreciation of the mark was increasing proportionately the values of both real and personal property. The valuation was made June 30, 1920, but since that date the actual value of the property had about quadrupled, so the taxpayers were paying only about a quarter of what had been demanded, whereas those who had simply fixed incomes were paying in strict proportion, with the result that they were practically ruined. Whereas the tax nominally might rise to 60 per cent, it had not, as a matter of fact, owing to the depreciation of the mark, risen above 20 per cent. Moreover, there had been a very ineffective valuation of property, owing to the disorganization of administrative machinery or other causes.

In Germany the fall of the mark was frequently used as an argument against the excessive reparations demanded by the Allies. It was said that it would prevent the payment of the reparations. The payments could not be met in pounds sterling or in dollars because the price of this money would soon become prohibitive for the German treasury. It could not pay the reparations in kind because the government had not the means of paying for the merchandise that German manufacturers might furnish, since the government was overwhelmed by the additional expenses involved in the decline of the mark. The enormous increase of the floating debt had necessitated an increase in the salaries of government officers which had added 20,000,000,000 marks to the budget. The working-men employed by the government also had claimed an increase of wages and it was at that time under discussion. Moreover, an increase of pensions had been promised. In these circumstances the German newspapers asked how Germany was ever going to find the money for the reparations. On the other hand, certain classes in Germany were greatly benefited by the depreciation of the mark. A leading German newspaper, for example, pointed out that the two chief steamship companies, the Hamburg American and the North German Lloyd, had greatly profited from their participation in American enterprises and had increased the number of their ships. This rapid increase of the ocean traffic under the German flag which was observed also on other lines was due largely to the monetary situation which gave German vessels a profit while foreign vessels as a result of the rate of exchange had not reached the limit of their capacity. In the toy industry the same advantages were enjoyed even to a greater extent. On the occasion of the fair at Frankfurt, it was brought out that the toy industry belonged still for the most part to the trades in which the exporter was paid in marks and that there was much speculation in the rate

of exchange. The result was that the capitalists engaged in the toy industry had made extraordinary gains and in certain parts of Germany the industry had been obliged to add extensively to its number of workmen. A German economist wrote for a Berlin paper that during the last few months industrial undertakings had acquired a huge amount of raw materials purchased abroad and of foreign securities which would permit them to add still more to their stock in the future. The great demand for foreign securities and the fall of the mark were largely due to the laying in of these stocks of raw materials and of foreign securities by the industries. In quarters unfriendly to Germany, this was taken as a sign that the falling off of the value of the mark was in large part caused by the Germans themselves who were trying to get rid of their national currency. Another economist in a report he prepared for the League of Nations emphasized the inertia of prices, that is to say, the fact that when a currency depreciates suddenly and extensively the price of merchandise does not advance in the same proportion. Thus foreigners for the time being have a great advantage in buying the merchandise whose currency has depreciated. This could be verified by the German experience and was illustrated everywhere not only in the statistical reports but in incidents on the streets. Observing the fall of German exchange the inhabitants of the neighboring countries entered Germany with large provisions of paper marks and made extensive purchases. There were frequent articles in the press describing these purchasing tours of foreign visitors, who arriving with pocketbooks full of German bills, went home the same evening loaded with purchases. Many came from Luxemburg for this purpose, for example, and from Czecho-Slovakia, whence they passed the Saxon border and entered Dresden in great numbers. In fact over long stretches of the frontier the coming and going of travelers for this purpose was remarked and its effect on the mark was incalculable. The German customs officers on the Baden frontier were obliged to forbid the export of cloth. There was much alarm in Germany over the disappearance of the merchants' stocks of goods and in some places there was a rush of purchasers fearing that the shops would be all sold out before they had a chance to buy. The papers contained such items as the following in the *Germania*: "An army of purchasers representing especially industrial establishments and councils of exploitation including government as well as private establishments are scattered over the country and are bidding against each other for the purchase of stocks of potatoes." German manufacturers were endeavoring to exchange the products of German manual labor paid in marks for foreign securities, while on the other hand foreign buyers were eager to exchange for merchandise the German marks that they had acquired. German industry was neglecting the home market in order to enter the foreign field. At Düsseldorf the imperial commissioner of the metal industries published a warning that it was necessary to provide for the replenishing of the national market. The same situation seemed to prevail in the cotton industry. In short the fall of the mark brought enormous profits to certain classes of privileged persons especially those who took advantage of it to dispose of all the stocks in their possession

and who exported their products so rapidly that their German customers were unable to get the necessary supplies.

Toward the close of the year the mark underwent wide fluctuations as the result of the pending discussion concerning reparations. In November and December Germany's chief industrial leader and financier, Hugo Stinnes, and the well-known industrial organizer, Dr. Walter Rathenau, former minister of reconstruction, were consulting with the British member of the Reparation Commission in London with a view to new adjustments, and later M. Louis Loucheur, French minister of reconstruction, was also engaged in discussion with the Chancellor of the British Exchequer. A meeting was promised between Lloyd George and M. Briand for the purpose of reaching a definite decision in respect to the next payments. During this period the value of the paper mark rose and fell according to popular sentiment, and toward the close of the year was fluctuating around the ratio of 160 to the dollar. It had fallen as low as 300 to the dollar.

SHIPPING. At the end of 1920, after the deliveries stipulated by the Versailles Treaty, Germany had about 100,000 gross tons of ships, of more than 1000 tons each; and about 400,000 gross tons, of less than 1000 tons each; against a prewar merchant marine of 5,240,000 gross tons. During the first seven months of 1921 Germany added to its merchant marine 60 vessels, aggregating about 400,000 gross tons. These comprised 7 vessels of 12,000 tons; 9 of 8000 to 10,000 tons; 11 of 5000 to 8000 tons; and 9 for which the tonnage was not stated. These figures do not include chartered vessels in the service of German companies (such as the 400,000 tons operated by the Kosmos Line on the western coast of South America) nor the inland waterway fleet.

More than 20 of the vessels added to the fleet in 1921 were old bottoms, fitted out with submarine Diesel engines. In the autumn there were under construction in German yards 20 motor ships, aggregating 132,000 tons and 47,500 horsepower. While some shipbuilders insisted that the price of Diesel oil in Germany made the employment of the motor vessel less economical than the coal-burning or oil-burning steamer, others figured that the relative saving in weight and space in the vessel, as well as the time and labor in refueling, was sufficiently great to more than offset the higher cost of oil.

The great shipbuilding companies had doubled their capital and more than met the proportionate output in the face of 1921. While the government cut the compensation for war losses sustained by shipowners from 15,000,000,000 to 12,000,000,000 marks, it had already advanced the amount stipulated for the year, and many of the firms were asking that advances be made from the amounts stipulated for the fourth and fifth years of compensation, promising on their part to keep the yards working during those years at their own expense. It was estimated that the German shipyards had a producing capacity of 750,000 tons annually, which is 50 per cent more than before the war.

Complete statistics of the foreign traffic being carried by the German merchant marine were not available, but a steady and rapid return to prewar conditions was seen in the growing activity of the principal ports. Even in 1920, Bremen regained

half its normal shipping; and the Kiel Canal, 90 per cent. Hamburg regained the steady advance it manifested from 1900 to 1914, though not in such large proportions as before the war. Taking 25,000,000 tons as the average prewar year's activity, Hamburg's traffic in 1919 regained 12 per cent of its former proportions; 35 per cent in 1920; and 60 per cent during the first half of 1921. In June, 1921, 65 per cent of the outgoing vessels flew the German merchant marine colors.

During the first nine months of 1921, the capital invested in shipping and shipbuilding companies increased by more than 485,000,000 marks, all but 52,000,000 of which was the result of increasing the share capital of companies already in existence. The total increase of share capital since 1913 amounted to more than 150 per cent.

RAILWAYS. The total length of the German railways in 1921 was about 36,000 miles, of which 69.5 per cent had double track or multiple tracks. The loss of territories through the peace treaty naturally was responsible for a reduction of 2500 miles in the prewar mileage. Statistics for 1919 showed that the total capital invested in German railways was 21,320,000,000 marks (\$5,330,000,000 approx. par of exchange). The total revenues and expenses (in millions of dollars) for the seven years ending with 1919 are shown in the accompanying table.

The German railways, once operated by the different federal states of the former empire after April, 1920, came into the control of the republic and in 1921 were operated as one system by the state and were known as the "Reichsbahn." This system or organization, included 92.2 per cent of the mileage of the country. A conspicuous exception and the only one of the important companies to retain its old form was the Luebeck-Beuchen Railway, which operated the double track line from Hamburg to Luebeck and Beuchen and owned about 85.75 miles of line. The smaller railways were to a great extent in the hands of private companies, but the state, municipalities, and districts were also strongly interested in them.

The state railways of "Reichsbahn," were controlled by a Ministry of Transport with the former general manager of the military railways during the war in charge. The ministry was divided into the following ten sections: Administration, personnel, transport, exploitation, rates, finances, rolling stock, and maintenance, machinery and electrification, construction and inspection of other railways.

The railways in Germany no less than elsewhere in Europe suffered in 1920 and the situation naturally was aggravated by natural and imposed conditions following the war. At the time of the armistice due chiefly to captures of railway equipment from invaded countries German railway rolling stock showed increases in locomotives of 22 per cent and in freight and passenger cars of 10 per cent over numbers on hand at the beginning of 1914. The terms of the armistice forced the return of 5000 locomotives and 150,000 cars to France and Belgium, and as a result the rolling stock available in 1920 and 1921 was considerably less than that of 1914. A difference of 31 per cent was given for locomotives in 1920, and 36 per cent and 25 per cent, respectively, for passenger and freight cars. In addition to deficiency in numbers many of the locomotives and cars in use were in need of repairs, while the roadbeds of most of the

German railways had deteriorated far below standard.

The railway deficit for the year 1921 (operation and replacement) was estimated to amount to about 7,000,000,000 marks (about \$35,000,000 at the 1921 rate of exchange) as compared with 15,000,000,000 marks (about \$75,000,000) in 1920. The extraordinary large figure for the earlier year was due to an unusual expansion in the number of employees.

Rates had steadily increased in Germany from before the war. Beginning with an increase on Oct. 1, 1917, of 7 per cent. the freight rates steadily mounted, until on Nov. 1, 1921, the accumulative increase was 13.59 per cent. Passenger rates were also raised 30 per cent. Previous increases of passenger rates, 1913-20, amounted to 671 per cent for first class fares, 433 for second, 380 for third, and 405 for fourth. Even with such increases it was impossible to make expenses balance revenues, and these reduced to millions of dollars from the time when the railways were a paying proposition are shown herewith.

GERMAN RAILWAY REVENUES AND EXPENSES
IN MILLIONS OF DOLLARS

Year	Revenues	Expenses	Surplus	Deficit
1913.....	712.64	499.48	213.16	.....
1914.....	628.04	503.16	124.88	.....
1915.....	688.18	497.04	191.14	.....
1916.....	802.3	578.66	223.64	.....
1917.....	938.22	778.28	159.94	.....
1918.....	941.48	1,203.14	.....	261.66
1919.....	1,602.62	2,413.34	.....	810.72
1921 (estimated).....	.....	.....	.....	3,750.00
1922 (estimated).....	.....	.....	.....	2,700.00

In Germany from the prewar days the number of railway employees had increased to a marked degree. In 1913 there were 740,000 employees and in 1919 this number had been increased to 1,121,000; it was reduced to 1,091,000 in 1920. Naturally the eight-hour day adopted was in part responsible for the increase, but it was obvious that with the great reduction in traffic there were far more employees than were necessary.

As elsewhere in Europe government ownership and operation were subjects of dispute during the year and it was said that the efforts of Hugo Stinnes, the German industrial magnate, which had been directed toward securing the control of the government railways, were objected to strongly by the German railway unions. Stinnes stated he would get rid of thousands of superfluous employees if the railways were intrusted to him, as well as abolish the eight-hour day and reduce wages so the railways could be operated at a profit. The unions duly served notice on the minister of railways that they would strenuously oppose such a change, and that the Socialist party, which is in control in the Reichstag, would not sanction it.

ARMY. At the time of the armistice the total mobilized strength of the German military forces was placed at about 6,000,000 men. The terms of disarmament imposed by the Treaty will be found in the article, *War of the Nations*, in the 1919 YEAR BOOK. They required the total number of effectives to be reduced to 200,000 by April 10, 1920, and then gradually to 100,000 under the supervision of military experts appointed by the Allied powers. Universal compulsory military service was abolished and the army was to be recruited by voluntary enlistment.

After the signing of the Treaty the question of German disarmament was the subject of acute discussion especially in the French press which consistently maintained during two years that Germany was false to her engagements, either disregarding them entirely or creating under various disguises new and formidable military bodies. It appeared, however, that the strength of the Reichswehr had been reduced to the authorized limit of 100,000 by January, 1921, and that down to that time there had been surrendered 30,500 guns; 10,000 trench mortars; 63,100 machine guns, and 2,524,000 rifles. See WAR OF THE NATIONS.

NAVY. By the Treaty of Peace the German fleet was practically annihilated, but the Treaty authorized the German government to maintain a navy on a volunteer basis. Submarines were prohibited and the total personnel was not to exceed 15,000, including a maximum of 1500 officers and warrant officers. There remained at the beginning of 1920, 6 super-dreadnaughts of about 13,000 tons each but of little value for fighting purposes; 6 light cruisers; 12 destroyers; 12 torpedo boats and certain other craft to be held in reserve but not to be provided with ammunition. Of the great high sea fleet of 1921 most of the capital ships had been destroyed and the rest were to be destroyed.

GOVERNMENT. Under the constitution of August, 1919, executive power is vested in a president elected by the people for seven years, and in a ministry appointed by him but responsible to the Reichstag; legislative power in the Reichstag or parliament elected by universal, equal, direct, secret, franchise of male and female electors on the principle of proportional representation, and in an imperial council or Reichsrat consisting of representatives of the constituent states. The consent of the Reichsrat is required to all bills before their introduction in the Reichstag. It consists of 55 members distributed as follows among the states: Prussia, 22; Bavaria, 7; Saxony, 5; Baden, 3; Württemberg, 3; and for all the other states, 15. At the beginning of the year the Fehrenbach ministry appointed, June 25, 1920, was still in power. It was constituted as follows: Chancellor, Constantin Fehrenbach; Vice-Chancellor and Minister of Justice, R. Heinze; Foreign Affairs, W. Simons; Home Affairs, E. Koch; Finance, J. Wirth; Defense, O. Gessler; Economics, E. Scholz; Labor, H. Brauns; Treasury, H. von Raumer; Posts, J. Giesberts; Transport, W. Groener; Food Supplies and Agriculture, A. Hermes. The president in 1921 was Friederich Ebert elected February 11, 1919. For changes in the ministry see paragraphs on *History* below.

HISTORY

OPPOSITION TO THE ALLIES. The government protested against the severe decisions of the conferences of the Allied prime ministers at Paris, January 24-29, and at London, February 28. After the former it declared its intention to resist these demands to the utmost, and after the latter, at which Dr. Simons, Minister of Foreign Affairs, had made an unsuccessful effort to secure more favorable terms, the Reichstag passed a resolution, March 12, by a vote of 268 to 49, approving the course he had taken. The foreign minister, however, did not attribute the demands

of the Allies to imperialism or to vengeance, but merely to the distress in the Allied countries. Meanwhile the government had shown its resentment at the terms of the London conference and the military occupation of the Ruhr basin by recalling, March 8, the German ambassadors from Paris, London, and Brussels.

ACTIVITY OF THE REDS. Revolutionary agitation took place under the leadership of Communists in the industrial regions of central Germany in March. A considerable loss of life was reported. A general strike was called in the Halle region after the arrest on March 13 of some Communists who had been charged with plotting to destroy public property, and sympathetic strikes occurred in Essen and Hamburg. There were some bomb attacks on public buildings at Leipzig, Dresden, and a number of other cities. The Red flag was displayed, and property was seized at several places. The movement was checked upon President Ebert's proclamation of a state of modified siege, and by the condemnation of the movement by the general trade union league; and the police restored order in about two weeks.

NEW MINISTRY. The Fehrenbach ministry resigned, May 4, on the eve of the presentation of the ultimatum by the Allies. It had come into power, June 26, 1920, as a combination of the People's party, the Centre, and the Democrats, controlled by the great industrial and financial groups led by Hugo Stinnes. It had carried on more or less successful negotiations with the Allies under Dr. Walter Simons as Foreign Minister. The business interests would not accept the Allied ultimatum and withdrew their support. The Fehrenbach Ministry was succeeded, May 10, by a coalition ministry made up of Majority Socialists, Centrists, and Democrats under Dr. Julius Wirth of the Centre. It was constituted as follows: Chancellor and Minister of Foreign Affairs, Dr. Julius Wirth; Finance Minister and Vice-Chancellor, Gustav Bauer (Majority Socialist); Economics, Dr. Heinrich Brauns (Centrist); Justice, Herr Schiffer (Democrat); Labor, Robert Schmidt (Majority Socialist); Transportation, General Groener (Democrat); Posts and Telegraphs, Johann Giesberts (Centrist); Agriculture and Foodstuffs, Andreas Hermes (Centrist); Interior, George Gradnauer (Majority Socialist); Defense, Dr. Gessler (Democrat); Reconstruction, Herr Silberschmidt (Majority Socialist). Herr Bauer was a former Chancellor; Dr. Gessler, Herr Hermes, Herr Giesberts, and General Groener held the same portfolios in the Fehrenbach cabinet, and Dr. Brauns was Minister of Labor in that body. Upon the appointment of the new ministry, the Reichstag at once voted to accept the Allied terms by 221 to 175.

SOCIAL CONDITIONS. On the return of the troops from the war there was a great increase both in the number of marriages and in the number of divorces. Statistics from Bavaria were made public in 1920. These showed the increase of divorces from the beginning of the war down to 1920, as follows: In 1913, 1159; in 1914, 1266; in 1915, 685; in 1916, 738; in 1917, 958; in 1918, 1153; in 1919, 2207; in 1920, 3625. As to the responsibility for the divorces in 1920 it was attributed to 1484 men and 1130 women; while in 1011 cases, responsibility was placed on both parties to the marriage. While down to 1915,

inclusive, the husbands guilty of the rupture were nearly twice as numerous as the wives. The figures approached equality in 1916 and passed over to the side of the women in the three following years. The occupations in which divorces were the most frequent were the large industries, commerce, and the hotel business.

THE MURDER OF ERZBERGER. Matthias Erzberger (q. v.), former Vice-Chancellor, was shot and killed near Offenburg, Baden, while walking in the Black Forest. He was in the company of a deputy named Diez when they were fired upon by two young men. Erzberger was shot several times in the head and killed instantly and his companion was wounded. For some time past the Pan-German element had been carrying on a bitter campaign against Erzberger, accusing him of the authorship of the present German policy and of trying to get back into political life. A previous attempt had been made on his life, Jan. 26, 1920, when he was wounded after attending a session of the criminal court.

REACTIONARY MOVEMENTS. After the murder of Erzberger the government undertook measures to suppress the militarist reactionary elements in the country that were causing trouble. It forbade at once a meeting scheduled for August 28 at Potsdam, just two days after the murder, for the commemoration of the battle of Tannenberg, and the meeting was not held; but there was a riot in which the police and certain Communists and Socialists came into conflict. On August 29, at a cabinet meeting, a decree was issued prohibiting assemblies, processions, and the publication of periodicals, if the authorities believed that they tended to cause violence or to threaten the constitution; and at the same time the Chancellor issued a proclamation to the effect that the government was determined to take the most radical measures against the anti-republican movement. A little later the publication of several extreme national newspapers was suppressed by the Minister of the Interior but they were permitted to resume publication in a few days. Meetings of groups belonging to the People's party arranged at Berlin and Chemnitz for September 2, contrary to police orders, were broken up by crowds of working-men. Similar incidents took place at other points throughout the country. The President issued an order forbidding men and officers to wear uniforms while not in active military service. The government was supported in its course by the majority of Independent Socialists and by the trades unions as was shown by the sending of delegations from these groups to the Chancellor with the assurance that they would stand behind the authorities. There was a formidable demonstration at Württemberg on the occasion of Erzberger's funeral, when a large body of Berlin workmen quit work to listen to Socialist orators denouncing the reaction. The Nationalists on the other hand continued their activities wherever possible. The Nationalist party held a convention at Munich, September 1, where the government was virtually defied. Nevertheless here and there leaders reputed to be reactionary rallied to the side of the government. For example, the Prime Minister of Bavaria, Dr. von Kahr, declared that he would support the republican constitution although he was the leader of the People's party; and another leader of that party, Dr. Stresemann, made the same declaration. The

Chancellor was quoted in the press as saying that there was danger lest the country should divide into two irreconcilable portions, the Socialists and the bourgeois, and that the government must make all possible efforts to prevent this. It would range itself on the side of the working-class. A delegation from Bavaria was sent to Berlin in September for the purpose of coming to an understanding with the central government and was reported to have yielded to most of the government's demands but this act was repudiated by both the Nationalist and People's party members of the Bavarian ministry, and as a result the Bavarian Ministry under Dr. von Kahr resigned, September 12. His retirement was followed by that of his main supporter in his reactionary policy, the chief of police. A more liberal politician was chosen as prime minister on September 22, namely, Count Hugo Lerchenfeld. This was followed by an agreement between the Bavarian and Berlin governments for raising the state of siege in Bavaria. There were frequent rumors of reactionary plots on the part of the Junkers but nothing was proven. The government offered a reward for the arrest of the men who had been engaged in the monarchist movement in 1920 under Dr. Kapp. The new Bavarian premier set forth the programme of the new government in an address to the Bavarian diet, September 22. His principal task would, he said, be the maintenance of public order and he declared himself in favor of absolute fidelity to the German nation, saying that it would involve the continuance of present political relations between Bavaria and the central government.

BAVARIAN REACTION. By far the most reactionary state of Germany was Bavaria. After the short triumph of the Reds in the few months following the armistice, the Conservative and Clerical elements regained the power and completely crushed their former adversaries. Bavaria during 1921 was in a state of siege in spite of the fact that there was absolute calm among the people at large. It gave the ruling class an easy means of arresting and punishing anyone they chose. There was not at Munich, where the working-class and the Socialists are numerous, a single newspaper that represented it with the exception of a government organ which was formally addressed to their interests. All the reactionary elements in Germany whether they were aiming at the overthrow of the democratic government, the return to a monarchy, resistance to the Treaty of Versailles, a war of revenge, or other policy, turned their hopes toward Bavaria. The leader of the reactionary majority in Bavaria was General Ludendorff who was surrounded by former officers of the army. Everything was ready to hand for another attempt like that of Kapp. The large number of political murders most of which were committed by reactionaries illustrated the spirit of the country. Secret meetings and vigorous propaganda in the interest of reaction sprang up and a campaign was carried on in the German interest in the Tirol and in the German provinces of Austria, looking to eventual annexation. No public meeting or demonstration of any kind was permitted on the part of the Socialists or working-men, who were well aware that any attempt on their part would result in seizure by the police or attacks by the military. On the other hand, the parties of the

Right were free to make such demonstrations as they chose and hardly a day passed without public celebrations of a nationalist or militarist order at which Ludendorff or one of his representatives or a prince of the royal family took part. On August 11 the police forbade the celebration of the imperial holiday which corresponds to the French 14th of July. In September there were seven Socialist deputies of the Landtag still in prison on the charge of high treason. Every time the Socialist deputies entered the Chamber they were searched by bailiffs and required to empty their pockets in order to make sure that they did not carry bombs or weapons, and even their desks were regularly searched by order of the president of the Chamber. Ever since the Bolshevik uprising Bavaria had been under a judicial system known as Courts of Exception, consisting of two magistrates and three sworn members designated by the government. Their judgment was rendered in a summary manner and was without appeal. A strong feeling against foreigners was another aspect of the reactionary situation which indeed seemed to have turned back the hands of the political clock a hundred years and reminded observers of the days of the Holy Alliance. In September, as noted in the preceding paragraph, the controversy was going on in respect to the state of siege. The parties in power naturally clung to it with great obstinacy as one of the chief props of their authority. The ruling class when approached on this subject declared that the state of siege was absolutely necessary to insure order; that the working-classes were much agitated and were angry over the increasing cost of living; that they would go down to the streets on the first chance and might succeed in overpowering the police. Observers, however, declared that so far as could be seen, the working-classes were perfectly peaceable and orderly, and that it was not they who suffered the most from the increasing cost of existence. The feeling of impartial witnesses was that the fear of Bolshevism and labor troubles was merely a sort of scarecrow for the purpose of bolstering up by means of general apprehension the government of the Right. It was simply a disguise of the party that sought to overthrow the democratic régime. The ruling classes of Bavaria were supposed to be waiting for a good excuse to start a *coupe d'état*. Among the royalists the more reasonable and moderate men had already begun to try and check this movement, realizing that the hour had not come for the restoration of the monarchy in Bavaria, for her example would certainly not be followed by the rest of Germany. The movement if it should be attempted now would result in failure.

A systematic campaign had been carried on under General Ludendorff in the interests of the old militarist and monarchical elements and for relieving Germany of all guilt in respect to the war. There was a vigorous propaganda to these ends and a vast body of printed matter was in circulation for the purpose of vindicating Germany in the eyes of the world. The members of the old ruling class were doing their best to win the good opinion of foreigners. Prince Max of Baden, who had been Chancellor for the few days preceding the armistice, was active in this propaganda and a book prepared by him along with many collaborators was widely circulated. Arguments

from all points of view were produced tending to show that imperial Germany was not alone responsible for the war and should not alone be called upon to bear its consequences. General Ludendorff in an interview with a French paper presented a long series of arguments all to the same effect. Since the war he had risen to the highest point in popular esteem among these reactionary elements. He had become the chief of a vast number of militarist organisations with branches all over Germany. On August 14 in an address at Königsberg he declared that he had no doubt that the fate of the country would be decided sooner or later in a fight for the eastern border. The springing up of these militarist organisations with General Ludendorff at their head gave rise to various rumors in September and October in respect to a supposed reactionary plot like that of Kapp the year before. To be sure Ludendorff had said that a war of revenge with France was out of the question for technical military reasons, but in France this was regarded merely as an attempt to throw the French people off their guard. His main contention was that all the states of Europe must unite for the purpose of restoring prosperity and combating the Bolshevik peril. To this end the countries that had been at war must forget the past and apply themselves in harmony to the work of rehabilitating Europe. In France this was interpreted as simply meaning that in forgetting the past the German debt for reparations should be forgotten, and as to the Bolshevik peril French commentators remarked that it had been this very militarist element in Germany that had created or at least contributed to the Bolshevik peril at the beginning.

ECONOMIC POLICY. Articles by Mr. J. M. Keynes published by the London *Times* in the summer and autumn were widely circulated in Germany and the measures proposed and conditions indicated in those articles were much discussed. According to them Germany would at the most be able to expand her export of such goods as did not require for their production a considerable import of raw materials, for example, such industries as iron-working, and the production of machinery, chemical products, dyestuffs, and glassware. Little stimulus would be afforded by the exchange situation because it was only a depreciating rate that stimulated production and not simply a rate which remained like the present one at its lowest point. Little by little the present difference between the purchasing power of the paper mark in Germany and its purchasing power abroad would disappear and thus reduce the advantage that German industry possessed in the world market. As to the reparations, Mr. Keynes predicted the failure of the German government. He declared the Allies could not impose this tribute during a long period. It was implied in what he said that the Germans might do well to reduce their exports in order not to have the means of paying too much at an early date, for the time would certainly come when the Allied Powers would be unable to bring enough pressure to bear upon Germany to enforce the execution of her agreements. This idea naturally was offensive to the French who regarded it as a counsel of bad faith tending directly to encourage Germany to break her engagements. Mr. Keynes undertook to expose the delusion which ran

through a large part of the press discussion that the receipt of an indemnity injured the industries of the receiving nation. In France it was suspected that this attitude toward Germany in England was dictated by self-interest. On the other hand, Mr. Keynes continued to recommend the consolidation of inter Allied debts and also proposed that France should have priority rights over the sums due from Germany. According to the French this would improve the situation.

POLITICAL PARTIES. In September attempts were being made to bring together the different groups of the Right and according to Herr Stresemann, leader of the former National Liberals, there was a promise of success. He declared that harmony had been reestablished with the Populist party which would take part in the next cabinet. There was a plan for a coalition between the three bourgeois parties and the Majority Socialists which promised to succeed if the coming Socialist congress at Goerlitz authorized it. Herr Stresemann declared it was the only way of getting out of the present difficulty. He added that while the Populists need not sacrifice their monarchical leanings, they must take their stand on the constitution. There was a steady growth in the opposition to the Wirth government, especially for its attitude toward Bavaria. The Chancellor was accused of destroying the unity of the empire by his manner of treating that question and by the sensational revelations that he had made to the committee of Parliament. The Populist party had for one of its aims an energetic resistance to any attempt of the Socialists to separate Franconia from Bavaria. It appeared also that the Catholic party was developing a strong opposition to the Chancellor and to the faction of the Left Centre, which wished continually to give way to the demands of the revolutionists. The three great Red groups were still much in evidence and had put forth a programme containing among its features, war against Bavaria, and mobilization of the proletariat against reaction; while the Majority Socialists appeared to seek a compromise which would save their face and permit them to take part in the new ministry. At the congress at Goerlitz the Majority Socialist leader, Hermann Müller, while thundering against the Monarchists and their partisans, refrained from saying anything that would prevent the Majority Socialists from entering the government. When taunted by his opponents on this score, he declared that when his party gained the majority and were once in power it would put socialistic conceptions into practice; meanwhile Socialists were content if they could inject some doses of Socialism into the capitalist régime. His idea was that the Majority Socialists already were the masters of the country and must eventually control the government. George Bernhard who had left the Socialists and become a member of the bourgeois party declared that if the congress of Goerlitz condemned co-operation with the Populists, the empire would be fastened to the present constitution by a *bloc* of the bourgeois parties—such a *bloc* as had developed in Bavaria.

THE PEOPLE'S PARTY. In the latter part of September a convention of the People's party was held at Heidelberg and it was there decided that its members would consent to enter the government provided that they were accorded a large share in

the financial and business management of affairs. Thus there was a chance for the formation of a coalition cabinet composed of Social Democrats, Centrists, Democrats, and members of the People's party representing the large business interests of the country.

THE SOCIALISTS. At the national congress of Goerlitz, September 18-25, the Majority Socialists modified their programme. The general spirit of the programme was democracy first and social reform afterward. It was pointed out that the Social Democrats had at that time 1,221,000 members paying dues and 112 deputies in Parliament. The decision to coöperate with other parties in support of the republic meant that it would influence about 9,000,000 members including the trade unionists. This decision, however, tended to weaken the union between the Social Democrats and the Independent Socialists. The latter body had declined in strength for some time past, the moderates tending to join the Majority Socialists and the extremists inclining toward the communistic elements. The municipal election in Berlin, October 16, showed a weakening of the radical parties. The bourgeois candidates received about 842,000 votes as against 800,000 for the Socialists and Communists, and the returns indicated that they would have a majority in the board of aldermen, thus reversing the situation in that body.

The Independent Socialists made it known at the end of September that the conditions on which they would enter the central government were as follows: The establishment of financial equilibrium by taxes on property; effective measures for the defense of the republic, including suppression of all monarchist plots and the removal of officials who were openly monarchist; the introduction of reforms in the judicial system; the continuation of the social policy; the socialization of the mines; a conciliatory foreign policy and a sincere effort to meet the demands of the Allies.

FALL OF THE WIRTH GOVERNMENT. After the decision of the League of Nations in respect to Upper Silesia, the Wirth ministry was insecure. Another thing that had weakened it was the decision of the Majority Socialists at the Congress of Goerlitz to coöperate with the National Liberals of the People's party. When the Wirth ministry came into power five months before, it had against it on the one hand the financial group that controlled the People's party and the leading elements of the Nationalists, and these enemies continued to attack it for its policy of conciliation toward the Allies. The signing of the terms of the Allies for the payment of reparations solidified the opposition. Then came the Upper Silesian decision which was regarded as a national disaster and strengthened the opinion that the government was weak and submissive. Moreover, the municipal elections in Berlin showed gains for the reactionary elements. Another point was the fear that under the Wirth administration the empire was threatened with the secession of the South German states led by Bavaria. This last consideration drove the Majority Socialists to the side of the People's party. The main issue at the time of the Wirth crisis was the question whether Germany should avail itself of the opportunity to negotiate directly with the Poles. The Democrats favored this course, while the German People's party opposed it, and the Centre was undecided.

The President communicated with the various party groups on October 23. The chief difficulty was the necessity of sending an economic commission to Upper Silesia. In the note addressed by the Chancellor to the President inclosing the resignation of the ministry it was pointed out that the government had been faithful in carrying out the ultimatum of the Allies; and that it had met the heavy demands upon the people especially in respect to the payment of 1,000,000,000 gold marks on October 31; and that in spite of this the Allies had reached a decision in Upper Silesia by which not only large tracts of German territory but flourishing German towns, the greater part of the internal wealth and four-fifths of the factories would be taken from Germany, and that a large part of the population which fell to Poland was German in origin and speech. It was a loss which the German people could never forget.

THE NEW WIRTH MINISTRY. The new cabinet with Dr. Joseph Wirth, again Chancellor, was announced October 26 as follows: Chancellor and Minister of Foreign Affairs, Dr. Wirth; Vice-Chancellor and Minister of the Treasury, Gustave Adolf Bauer, Socialist; Minister of the Interior, Adolf Koester, Socialist; Minister of Defense, Herr Gessler, Democrat; Minister of Economics, Robert Schmidt, Socialist; Minister of Food and Interim Finance, Andres Hermes, Centrist; Minister of Posts and Telegraphs, Johann Gieberts, Centrist; Minister of Labor, Dr. Heinrich Brauns, Centrist; Minister of Communications, Herr Groener, Democrat; Minister of Justice, Herr Radbruch, Socialist.

The members had already served in Dr. Wirth's cabinet or in the cabinets immediately preceding with the exception of Herr Radbruch, who was an entirely new man. On meeting the new government the Reichstag voted confidence by 230 against 132, the majority consisting of Majority Socialists, Independent Socialists, Centrists, and Democrats. The People's party representing the so-called "Big Business group" headed by Hugo Stinnes, was opposed to this ministry just as it had been to the former one and it failed in like manner to prevent its election. Out of the 469 members of the Reichstag the Chancellor could count upon only 216 votes from the Centrists, Socialists, and Democrats, and 21 from the other parties. On assuming office he declared that the most urgent task of the government was the execution of the decision concerning Upper Silesia, which was a great injustice to Germany and contrary to the text of the Treaty. The situation was created by force and did not invalidate the rights of Germany to the territory.

On December 13 the Chancellor introduced measures of radical economic reform. The postal and railway rates were raised from 2000 to 3000 per cent, and it was proposed that the trade and industrial assets of the nation should serve as the security for loans.

DISARMAMENT. Reports from various quarters indicated that the disarmament of Germany was progressing at the required rate throughout the year. At the close of the year, according to the report of press representatives sent from the United States to investigate, it had been carried out to the extent of about 93 per cent in respect to machine guns and rifles and about 97 per cent in respect to artillery. As to factories known to have been engaged in the making of munitions

they were reported to have been reduced to a capacity of about 98 per cent. In December the German Chancellor, Dr. Wirth, repeated the denial which had been made on many previous occasions by German authorities of the charge on the part of France that Germany had not disarmed. He said, moreover, that all the free corps in Germany had been dissolved.

OTHER EVENTS. Various organizations of a reactionary or royalist tendency were organized throughout the year, beginning with a royalist organization, entitled, League of the Upright, which was formed at Berlin in January, and a League of Honor, formed at Bremen at about the same time. Two American detectives in pursuit of the American draft-evader, Bergdoll, were arrested in March but released soon afterwards, March 31. Attacks by the Communists occurred in Hamburg, Leipzig, and Dresden and were reported to be made at the instigation of Russian agents, but the movement was soon put down by the authorities. The most destructive explosion that had occurred in the history of German industry took place at Oppau, September 21, when the synthetic nitrate factory of the Badische Anilin company exploded, killing about 800 persons and causing damage estimated at 1,000,000,000 paper marks. Such was the force of the explosion that the town itself was virtually destroyed, the walls of buildings collapsed in the city of Worms, twelve miles away, and the shock was felt at a distance of fifty miles. The number of wounded was placed at 2000 of whom 400 were said to be seriously wounded. A French detachment stationed at the plant was annihilated. The peace treaty with the United States was ratified by the Reichstag, September 17, and by the Reichstag, December 30. In the meanwhile American consular offices in the large cities were opened (November 21). On December 16 the supreme court at Leipzig sentenced the former chief of police and two other officials, accused of complicity in the Kapp counter-revolution of March, 1920, to six or seven years' imprisonment. Elections for the Prussian parliament (Landtag) at the close of the year resulted as follows: Majority Socialists, 113 seats; Centre party, 90; People's party, 57; National party, 73; Democrats, 26; Independent Socialists, 28; Communists, 30; Economists, 4.

GERVAIS, A. A. See **NECROLOGY**.

GESTEFELD, URSALA NEWELL. Woman lecturer and writer, died at Kenosha, Wis., October 22. The "Science and Being" movement was founded by her and she wrote and lectured widely on the subject. She was born at Augusta, Maine, in 1845 and was one of the early supporters of Dr. Mary Baker Eddy. In 1897 she went to Chicago and was there the first Pastor of the Church of the New Thought and head of the College of Science and Being. She was the author of nearly twenty volumes.

GIBBON, THOMAS EDWARD. Lawyer, died, June 23. He was born at Devall Bluff, Ark., May 28, 1860; admitted to the Arkansas bar in 1883 but removed to Los Angeles, Calif., in 1888 and became organizer and attorney of several railroads. He was a member of the Arkansas house of representatives 1884-85 and after settling in California held important offices at Los Angeles, among others that of member of the harbor commission of the city, 1910-14. He was general counsel of the Los Angeles and Salt Lake rail-

way, 1901-05. He wrote *Mexico under Carranza*.

GIBBONS, JAMES. Cardinal, died March 24. He held the office of Primate of the Roman Catholic Church in the United States. He was born at Baltimore, Md., July 23, 1834, and educated in Ireland during his childhood. He returned to Maryland and began his studies for the priesthood at the age of seventeen. After his ordination in 1861 he held a pastorate at Canton (near Baltimore) and in 1868 was made Vicar Apostolic of North Carolina and soon afterwards bishop. From this work he was promoted in 1872 to the see of Richmond, Va., where he served with great success for five years. He was then appointed coadjutor in Baltimore and in the same year succeeded to the see. He presided over the third Plenary Council of Baltimore in 1884. His long and successful service resulted in his appointment as cardinal by the Pope in 1886. Among his writings may be mentioned the following: *The Faith of Our Fathers*; *Our Christian Heritage*; *The Ambassador of Christ*; and *A Retrospect of Fifty Years*.

GIBRALTAR. A narrow peninsula on the southwest coast of Spain, commanding the entrance to the Mediterranean, and comprising the rock of Gibraltar; a British colony. Area, one and seven-eighths square miles; fixed civil population estimated, Jan. 1, 1920, 16,040 (7791 males and 8249 females), for the most part descendants of Spanish and Italian settlers; alien population, 1733. Most of the inhabitants are Roman Catholics. There were in 1918 and 1919, 16 government aided elementary schools with 2603 pupils, and several private English schools. Revenue (1919), £239,397; expenditure, £136,432; total tonnage, entered, 13,737,959; cleared, 16,030,961. The trade is largely transit, including the supplying of coal to ships. Gibraltar is a naval base and one of the most important strategic points in Europe. It is a crown colony of Great Britain under a governor who is also commander-in-chief. There have been movements in Spain from time to time for the cession of Gibraltar to the Spanish government. The subject was frequently brought up in the Spanish and French press during the year.

GIBSON, JOHN MONRO. British clergyman and author, died in London, October 13. He was born at Whithorn, Scotland, April 24, 1838, and went to Canada where he studied at University College and Knox College (theological), Toronto, graduating with high honors. After teaching on the faculty of the Montreal Theological College, 1868-74, he served as minister of a Presbyterian parish at Chicago. In 1891 and 1915 he was Moderator of the Presbyterian Church of England. He wrote *The Mosaic Era* (1881); *Rock vs. Sand* (1883); *Christianity According to Christ* (1888); *Unity and Symmetry of the Bible* (1896); *From Fact to Faith* (1898); *The Glory of Life* (1900); *The Inspiration and Authority of Holy Scripture* (1908); and several other works on religion.

GIFTS AND BENEFACTION TO UNIVERSITIES AND COLLEGES. See **UNIVERSITIES AND COLLEGES**.

GILMAN, JOHN E. Veteran of the Civil War, died, February 21. He was born at Boston, Mass., Dec. 22, 1844, and educated in the public schools. During the Civil War he participated in many

battles and was honorably discharged, Oct. 28, 1863, having lost his right arm. He was afterwards in the employ of the Massachusetts government from 1901 to the time of his death as a commissioner of the Soldiers' Relief Department at Boston.

GILMORE, THOMAS MADOR. See NECROLOGY.

GIRL SCOUTS. A national organization modeled after that of the English Girl Guides and founded in the United States in 1912 by Mrs. Juliette Low, an American friend of the founder of the Boy Scouts and Girl Guides, Sir Robert Baden-Powell. The purpose of the organization is to give girls a larger life, and develop good citizenship among them through right use of their leisure time. It aims to cooperate with all bodies working to this end, is non-sectarian and open to any girl from 10 to 18 years old who wishes to join and accepts the Promise and Laws. Girl Scout Promise: "On my honor, I will try: To do my duty to God and my country; to help other people at all times; to obey the Scout Laws." Girl Scout Laws: "1, A girl scout's honor is to be trusted; 2, A girl scout is loyal; 3, A girl scout's duty is to be useful and help others; 4, A girl scout is a friend to all and a sister to every other girl scout; 5, A girl scout is courteous; 6, A girl scout is a friend to animals; 7, A girl scout obeys orders; 8, A girl scout is cheerful; 9, A girl scout is thrifty; 10, A girl scout is clean in thought, word and deed."

Girl Scouts are organized in troops of about 16 each, under the direct charge of a captain. Captains obtain their commissions from National Headquarters; they must be at least 21 years of age and of good personal character. During the school year troops hold weekly meetings for work and recreation. In the words of the handbook, Girl Scouts learn "in the happiest way how to combine patriotism, outdoor activities of every kind, skill in every branch of domestic science and high standards of community service." They go on hikes, camp out, and during the summer months many attend the regular camps maintained by the National Organization.

The annual registration fee of fifty cents for each scout and \$1.50 for each captain goes toward the support of the National Headquarters at 189 Lexington Ave., New York, which publishes a monthly magazine, *The American Girl*, and the official handbook of the Girl Scouts, *Scouting for Girls*, together with other manuals and pamphlets. For 1920 the registration in the United States included approximately 82,000 girls and 3600 captains and although figures for 1921 were not available an increase in membership was indicated.

GLASSON, EDWIN J. See NECROLOGY.

GLUCK, ALMA. See *Music, Artists, Vocalists*.

GOLD. The Bureau of the Mint, with the co-operation of the Geological Survey, issued the following final statement of the production of gold in the United States during the calendar year 1920.

State or territory	Fine ounces	Gold	
			Value
Alaska.....	412,915	\$	8,535,700
Alabama.....	10		200
Arizona.....	240,032		4,961,900
California.....	716,477		14,810,900
Colorado.....	363,218		7,508,400
Georgia.....	34		700

State or territory	Fine ounces	Gold	
			Value
Idaho.....	22,668	\$	468,600
Illinois.....	.....		.....
Massachusetts.....	10		200
Michigan.....	.....		.....
Missouri.....	14		300
Montana.....	91,802		1,897,700
Nevada.....	175,451		3,626,900
New Mexico.....	21,720		449,000
North Carolina.....	54		1,100
Oregon.....	49,714		1,027,700
Pennsylvania.....	.....		.....
South Carolina.....	14		300
South Dakota.....	209,842		4,337,800
Tennessee.....	285		5,900
Texas.....	5		100
Utah.....	102,975		2,128,700
Washington.....	7,160		148,000
Wyoming.....	10		200
Philippines.....	61,756		1,276,600
	2,476,166		\$51,186,900

The above figure for total value was \$9,146,500 less than in 1919. The same authorities prepared the following preliminary estimate of the production of gold in the United States during the calendar year 1921:

State or territory	Ounces	Gold	
			Value
Alaska.....	362,633	\$	7,496,300
Alabama.....	5		100
Arizona.....	156,038		3,225,600
California.....	739,214		15,280,900
Colorado.....	331,354		6,849,700
Georgia.....	39		800
Idaho.....	25,315		523,300
Illinois.....	.....		.....
Maine.....	10		200
Michigan.....	.....		.....
Missouri.....	10		200
Montana.....	80,835		1,671,000
Nevada.....	155,472		3,213,900
New Mexico.....	10,981		227,000
North Carolina.....	73		1,500
Oregon.....	40,079		828,500
South Dakota.....	315,981		6,531,900
Tennessee.....	251		5,200
Texas.....	68		1,400
Utah.....	89,184		1,843,600
Virginia.....	24		500
Washington.....	8,436		174,400
Wyoming.....	10		200
Philippines.....	59,467		1,229,300
	2,375,479		\$49,105,500

Compared with 1920 these estimates indicated a reduction of \$2,081,400 in value of gold production. The record gold production of the United States occurred in 1915, when \$101,035,700 gold was turned out.

The imports and exports for 1920 and 1921 are shown in the accompanying tables:

Gold	12 months ended Dec.—		
	1921, dollars	1920, dollars	Increase (+) Decrease (—) dollars
Imports.....	691,267,448	417,068,273	+ 274,199,175
Exports.....	23,680,043	332,091,208	— 298,411,165
Excess of imports.....	667,587,405	94,977,065	.....
Excess of exports.....	.....	.....	.....

IMPORTS AND EXPORTS OF GOLD

IMPORTS	Gold		
	1921, dollars	1920, dollars	1919, dollars
January.....	33,633,967	12,017,551	2,113,217
February.....	42,626,913	4,473,360	3,944,839
March.....	87,271,775	16,985,222	10,481,197
April.....	80,662,202	48,522,212	6,691,795
May.....	58,171,386	15,687,859	1,079,525

IMPORTS	1921, dollars	Gold 1920, dollars	1919, dollars
June.....	43,576,476	26,764,983	26,134,460
July.....	64,247,479	19,817,758	1,846,495
August.....	84,901,554	15,377,794	2,490,489
September.....	66,085,253	39,110,008	1,471,628
October.....	47,106,839	116,762,001	4,969,595
November.....	51,298,626	56,889,037	2,396,770
December.....	31,684,978	44,660,488	12,914,036
12 mos. ending Dec..	691,267,448	417,068,273	76,534,046

EXPORTS	1921, dollars	Gold 1920, dollars	1919, dollars
January.....	2,724,980	47,816,873	3,396,098
February.....	1,036,005	42,873,376	3,110,153
March.....	709,668	47,049,586	3,803,229
April.....	383,787	44,622,477	1,770,057
May.....	1,062,521	7,561,683	1,956,135
June.....	773,603	5,319,875	82,972,840
July.....	3,734,929	21,872,783	54,673,227
August.....	671,652	24,986,182	45,189,318
September.....	2,448,741	17,129,090	29,050,466
October.....	7,576,472	25,931,239	44,148,990
November.....	607,437	19,869,757	51,857,796
December.....	1,950,248	17,058,287	46,256,939
12 mos. ending Dec..	23,680,043	322,091,208	368,185,248

With a decline in the production of this metal in 1921 and its intimate relation with problems of currency and finance, gold mining and exchange was an important economic consideration during the year. From the various states of the British Empire was derived 67 per cent of the world's output for the year, and it is interesting to record that the labor, materials, and transportation involved in this production were paid for in a depreciated paper currency. As a result in these states gold was at a premium which varied, not only from time to time but among the states themselves with a maximum of 50 per cent in the Transvaal and a minimum of 10 per cent in Canada. Therefore it will be apparent that gold miners in these states had a distinct advantage over gold producers in the United States, which supplied 14 per cent of the year's production, and in Mexico which furnished 4 per cent, as in both these countries gold was not at a premium. Not only was this condition changing but with the tendency of exchange between the United States and Great Britain to return to the normal, as shown in the rapid rise in value of the pound sterling towards the end of the year, there was every indication that the time of adjustment was approaching.

In 1921 there continued the marked decline in gold production in the United States which was further caused by the closing down of copper mines, from which gold was derived as a by-product. Many of the ordinary gold mines were closed down when operating costs became prohibitive, and the reduction in the cost of labor and supplies that took place during the year was not sufficient to induce the operators to start up again. There was a decreased production in Alaska due to the exhaustion of old placer deposits and the failure to discover new ones of corresponding importance, while new workings for which hopes had been entertained failed to develop either on account of working conditions or for economic reasons. However, towards the end of the year, when it was believed that there would be reduced freight rates as well as lower costs for supplies and a lower scale of wages, it was thought that a resumption of mining activity

might follow, even sufficient to check the decline in the output from the United States and possibly develop a slight increase.

Canada not only maintained its rate of production but slightly increased it, the output of gold for 1921 being estimated at 875,088 fine ounces worth \$18,089,674, as compared with 765,007 ounces valued at \$15,814,089 in 1920. For the reasons already mentioned of a premium on gold the industry was able to flourish, but it was rather by extending and increasing production at existing mines than by the development of new properties. There were also indications that inevitable decreases in cost of mining might result in further developments, but on the other hand conditions in general were hardly conducive to great increases in the Canadian gold output.

In the Transvaal which in 1921 furnished about 48 per cent of the world's production, there was activity during the year due in a large measure to the substantial premium, which permitted many of the low-grade mines to operate which could not do so with profit under normal circumstances. This condition answered for the times, but with the falling of the premium there would have to be either a shutting down of at least some of these mines or a marked reduction in wages and cost of supplies. Another factor was also apparent in 1921; namely, that there were mines in the Rand where the end of the ore reserves was clearly in sight and where production inevitably would cease in a not distant future. It was true that there were new mines, but the production of these was below the losses caused by exhaustion of existing workings. Therefore the Transvaal seemed likely to be on the decline as a gold producer and the rate of this decline in some quarters it was thought would continue to be more rapid.

India apparently in 1921 maintained its rate of production, but the decrease in Australia continued and no new sources of importance were developed. Obviously in Russia the decline in production resulted from political causes and the condition of future gold output was one that was entirely dependent on the nature and conduct of a future government.

From the reports rendered from the different countries the conclusion was inevitable that the rate of gold production the world over was on the decline and that so far there had not been devised metallurgical or mining processes that would render feasible the working of ore of lower grade than was being already exploited. Yet there was unquestionably a large and growing demand for gold which would increase when the paper currencies of Europe ceased to possess value as mediums of exchange. Economists pointed to the lessons of the French Revolution and of the more recent Mexican Revolution where after the use of a paper currency there came the return to the more stable metals as a basis of exchange. Consequently it was anticipated that the search for new gold deposits and their development on an economic basis was likely to be an incident of the financial adjustment after the World War.

GOLD COAST. A British colony of Africa on the Gulf of Guinea between Togoland and the French Ivory Coast, with a coast line of 334 miles, comprising, besides the colony proper, Ashanti and a protectorate. Total area, about 80,000 square miles; population, 1911, 1,503,386, of whom the Europeans in 1915 numbered 2206.

Capital and chief town, Accra (19,585); other large towns: Cape Coast Castle (11,364); and Seccondree (7,725). The following table from the *Statesman's Year Book* of 1921 shows the revenue, expenditure, imports, and exports from 1916 to 1919, inclusive.

	1916 £	1917 £	1918 £	1919 £
Revenue.....	1,835,989	1,624,124	1,298,674	2,601,360
Expenditure....	1,465,946	1,424,279	1,309,486	1,781,170
Imports *.....	5,999,749	3,386,490	3,257,591	7,946,981
Exports *.....	5,816,527	6,364,925	4,472,925	10,814,175

* Including bullion and specie.

The chief imports in 1919 were: Cotton goods; provisions; bags and sacks; hardware; vehicles; building materials; kerosene and fuel oil; and apparel; and the chief exports were: Cocoa, gold and gold dust; kola nuts; palm kernels and palm oil; lumber; and manganese. The United Kingdom had by far the greatest share of the foreign trade, but the United States showed a marked increase over the preceding year, and ranked next in importance.

During 1920 the Gold Coast achieved the biggest trade in its history, exceeding by several million pounds sterling the trade of 1919, the record until that year. In 1920 exports and imports reached £26,000,000, or £8,500,000 more than in 1919. Imports accounted for £14,000,000, as compared with £8,000,000 in 1919, an increase of 77 per cent. This large advance in import values was in some degree accounted for by the increased cost of goods; but notwithstanding higher prices, there were, in numerous instances, larger importations as regards quantities. Imports of cotton goods approximated for £4,000,000, double the 1919 value. Wearing apparel, perfumery, tobacco, hardware, motor vehicles, and railway plant also showed considerable increases. The increased imports of high-priced nonessential articles indicated that the people possessed a considerable amount of surplus wealth for disbursement during the year. The explanation of this was to be found in a review of the export returns relating to domestic produce. The statistics showed that while over 176,000 tons of cocoa, of a value of about £8,500,000, were shipped overseas in 1919, shipments for 1920 approximated over 118,000 tons of a value totaling nearly £10,000,000. Although, therefore, the colony exported nearly 58,000 tons less, the value was £1,500,000 greater. Kola nuts and lumber also showed increases in value during the year. Owing to the influence of cocoas, the exports of palm kernels, palm oil, and rubber all fell in value. The year as a whole was one of extraordinary commercial activity and prosperity, and taking an average throughout the year sellers of produce received higher prices than they ever received before. The shipping entered and cleared in the foreign trade in 1919 had a tonnage of about 1,500,000 which was over 50 per cent in excess of the preceding year. There is a government railway 168 miles long from Seccondree to Coomassie with branches to Prestea and Inchaban; also a line from Accra to Tafo, 65 miles in length. Further lines were in process of construction. Ashanti is especially rich in forests which contain valuable woods, and commercial plants. In this region rubber and cocoa plantations have latterly been developed. The chief town of

Ashanti is Coomassie with about 24,000 inhabitants. The northern territories lying to the east and south of the French possessions and to the west of Togo were placed under British protection in 1901, and are governed by a chief commissioner whose headquarters are at Tamale. The governor of the Gold Coast at the beginning of 1920 was Brigadier-General F. G. Guggisberg.

GOLF. Upsets were plentiful on the links during the year 1921. The clashes between the players of the United States and Great Britain were the most notable golfing events of the year and added greatly to the ever-growing popularity of the game. Miss Cecil Leitch of Great Britain was the only champion of the previous year to retain her laurels, triumphing in the British, French, and Canadian title tournaments. But Miss Leitch in turn met defeat in the U. S. National Women's Championship which was won by Miss Marion Hollins.

Among the men, Jock Hutchison of Chicago stood out with his victory in the British open tournament played at St. Andrews, Scotland. James Barnes of Pelham captured the U. S. National open title, while Jesse Guilford of Woodlawn carried off the honors in the U. S. National Amateur competition. Hutchison's triumph in the British open came only after a play-off as he and Rogers Wethered made the same score in the regulation round.

Abe Mitchell and George Duncan, who rank at the top in Great Britain as professional golfers, made a long tour of the United States during 1921, and although they were unsuccessful in the open tournament made an exceptionally fine record in their many matches on foreign courses.

Walter Hagen was the victor in the U. S. Professional Golfers' Association tournament and also made an excellent showing in several other American tournaments. The Princeton University team for the second year in succession won the intercollegiate honors, J. S. Dean of Princeton taking the individual prize.

GOMEZ, JOSE MIGUEL. Cuban patriot and founder of the Cuban republic, died in New York City, June 13. After the defeat of his party in Cuba in 1920 he had come to the United States for a visit. He was born in Cuba, July 6, 1858, and educated at a Jesuit college and at the University of Havana where he graduated in 1875. At that time the Ten Years War with Spain was going on and he took part in it during its closing months. He was henceforth prominent in all the political movements on the island and fought throughout the War of Independence, in the course of which through his activity and bravery he rose to the rank of brigadier-general after the battle of Santa Teresa in which he was wounded, and he was afterwards made major-general. He fought persistently against the administration of General Weyler. After the war he was a representative to the last revolutionary assembly. Under the American intervention he was appointed governor of Las Villas in 1898 and was elected to the same office in 1901. He ran for the presidency in 1905 but failed. He was an enemy to the American control and in the revolution of 1906 was arrested but later released by the American government. In 1908 he was elected to the presidency by the Liberal-Historical party and held office from 1909 to 1913. Among the accomplishments of his administration may be mentioned the re-

organization of the army, the increase of the navy, the extension of the public school system, and important improvements of the ports, roads, bridges, etc., including railway construction. In 1920 he was again a candidate for president but was defeated by Dr. Zayas. See CUBA.

GORDON, SETH CHASE. Physician, died at Portland, Maine, June 22. He was born at Fryeburg, Maine, August 17, 1830; graduated in medicine at Bowdoin in 1855 and practiced at Portland, Maine, after 1865. He had meanwhile served as assistant-surgeon and surgeon in the Union army in the Civil War. He was surgeon of the Maine General Hospital 1874-94 and a frequent contributor to medical journals especially on gynecological subjects.

GORIZIA. The Italian name of Görs. See GÖRZ AND GRADISCA.

GORROSTIETA, L. E. See NECROLOGY.

GÖRZ AND GRADISCA. A crownland of Austria before the dissolution of the Austro-Hungarian empire at the close of 1918. For statistics see preceding YEAR BOOK. By the treaty with Austria it was acquired by Italy, and the area, according to the latest available figures, was 1138 square miles, and the population, 260,749.

GOTHIC LANGUAGE. See PHILOLOGY, MODERN.

GOUCHER COLLEGE. A non-sectarian institution for higher education for women at Baltimore, Md.; founded in 1885. The enrollment for the regular fall session of 1921 was 879. There were 75 members of the faculty. The productive funds amounted to \$1,237,008. There were 35,000 volumes in the library.

The college purchased a campus of 421 acres at Towson, Md., just six miles north of its present site, and was engaged in a campaign for \$6,000,000, of which \$5,000,000 was to be used to remove the College to its new site and \$1,000,000 was to be added to the permanent endowment funds for the purpose of increasing the salaries of the faculty. Toward the \$1,000,000 for endowment the General Education Board of New York pledged \$400,000. President, William Westley Guth, Ph.D., LL.D.

GOULD, ASHLEY MULGRAVE. Judge, died at Washington, D. C., May 20. He was born at Lower Horton, Nova Scotia, Oct. 8, 1859, graduated at Amherst College in 1881 and was admitted to the bar of Maryland in 1884. In 1898 he was a member of the Maryland house of delegates and from 1901 to 1902 United States attorney for the District of Columbia. After 1901 he was a professor in the law department of Georgetown University where he had taken his legal degree. After Dec. 8, 1902, he was associate-justice of the supreme court of the District of Columbia.

GOVERNMENT OWNERSHIP. See RAILWAYS.

GRACE, THOMAS. Roman catholic bishop, died at Sacramento, Calif., December 27. For over twenty-five years he was bishop of Sacramento. He was born at Wexford, Ireland, August 2, 1841; and educated for the priesthood at Dublin. He was ordained priest in 1867, and after that held pastorates in California and Nevada. He was rector of the cathedral at Marysville for eight years; pastor of the Sacramento Cathedral from 1881 to 1896; and was consecrated bishop of Sacramento, June 16, 1896. His attitude was tolerant and friendly to all Christian churches

and faiths. Mrs. Leland Stanford bestowed on him the Stanford mansion at Sacramento which was afterwards turned into a home for friendless children.

GRAHAM, PETER. Scottish painter, died October 19. He was born at Edinburgh in 1836, but removed to London where he became a member of the Royal Academy in 1881. His subjects are landscapes and animals, and he is best known for his studies of Highland scenery and for certain sea pictures. Among his works may be mentioned: "Highland Spate" (1866); "Our Northern Wall"; "The Fowler's Crag"; "Where Deep Seas Moan"; "A Rainy Day".

GRAHAM LAND. See FALKLAND ISLANDS.

GRAIN EXCHANGES, SUPERVISION OF. See AGRICULTURAL LEGISLATION.

GRAMMAR. See PHILOLOGY, MODERN.

GRANDIDIER, ALFRED. French scientist, Vice-dean of the Academy of Sciences, died in Paris, toward the end of September. He was born in 1836 and early applied himself to the study of the natural sciences. In 1865 he was in charge of the mission to Madagascar which he explored during a period of five years and a full description of which he published on his return to France in an elaborate work, under the title of *Physical, Natural and Political History of Madagascar*, in forty volumes. He also traveled widely in both hemispheres and published various accounts of his travels and reports on the meteorology, geography, and geology of the countries traversed.

GRANGE, E. A. A. See NECROLOGY.

GRAPHITE. The general dislocation of the world's industry and commerce caused by the war showed its effect on the production of graphite. Graphite enters in various ways into many basic industries, and the graphite industry would accordingly show a reaction to the conditions that promote or depress those industries. The history of the graphite industry in 1920 was therefore largely a reflex of the history of general business conditions, especially the conditions in the metallurgic industries. The statistics available indicated that the world's production of natural graphite in 1920 was even less than in 1919, according to the United States Geological Survey. The countries that produce chiefly crystalline or flake graphite fared generally better than those that produce chiefly amorphous graphite. Canada, Bavaria, Ceylon, and the crystalline-graphite districts of the United States showed increases in production. Madagascar, still suffering from the overproduction of 1917, was the exception. On the other hand, the output of amorphous graphite in Mexico, Austria, Czecho-Slovakia, and Italy showed marked decreases. Chosen, however, which produces both varieties, increased its output of amorphous graphite because of an increased demand from Japan, and the United States also made a larger output of that variety. The world's production of natural graphite in the years 1919 and 1920, with figures for 1913 for comparison, is shown in the accompanying table:

WORLD'S PRODUCTION OF NATURAL GRAPHITE,
1913, 1919, AND 1920, IN METRIC TONS

	1913	1919	1920
United States: ¹			
Amorphous.....	2,035	3,065	4,258
Crystalline.....	2,297	3,668	4,369

¹ Shipments and sales.

	1913	1919	1920
Canada ¹	1,961	1,199	2,020
Mexico ²	4,023	4,995	3,319
Austria and Styria.....	17,282	³ 17,000	³ 10,000
Bohemia and Moravia.....	32,175	31,234	³ 15,000
Germany.....	12,057	30,451	³ 48,000
Italy.....	11,145	7,626	4,190
Ceylon.....	28,996	6,778	9,352
Chosen (Korea) ²	14,543	³ 12,000	³ 14,000
Madagascar.....	7,997	4,983	⁴ 5,500
All other countries.....	1,987	12,049	⁴ 4,000
	136,498	135,000	³ 123,000

¹ Shipments and sales.² Exports.³ Estimates based on trade statistics or on data received from the industry.⁴ Preliminary figures.

GREAT BRITAIN. UNITED KINGDOM OF GREAT BRITAIN AND IRELAND. A constitutional monarchy, comprising the British Isles. Capital, London. The term Great Britain though applicable literally only to England, Scotland, and Wales, is often used as above to include Ireland, the Isle of Man, and the Channel Islands. The status of Ireland was still indeterminate at the close of the year, and the adoption of the plans then pending indicated a change in this usage. (See IRELAND.) The United Kingdom with all its possessions and dependencies, that is to say, the dominions, colonies, protectorates, and other territories subject to the ultimate control of Parliament constitutes the British Empire.

AREA AND POPULATION. The area of England, Wales, Scotland, Ireland, the Isle of Man, and the Channel Islands is 121,633 square miles. The population at the census, April 2, 1911, was 45,516,259 of whom 22,162,390 were males and 23,353,869, females. The following table taken from the *Statesman's Year Book* of 1921 shows the distribution by divisions:

Divisions	Area in sq. miles	Males	Females	Total population on April 2, 1911
England (including Monmouthshire).....	50,874	16,421,298	17,623,992	34,045,290
Wales.....	7,466	1,024,310	1,800,892	2,025,202
Scotland.....	30,405	2,308,839	2,452,065	4,760,904
Ireland.....	32,586	2,192,048	2,198,171	4,390,219
Isle of Man.....	227	23,937	28,079	52,016
Channel Islands.....	75	46,229	50,670	96,899
Army and Navy abroad.....	.....	145,729	.....	145,729
Total.....	121,633	22,162,390	23,353,869	45,516,259

According to preliminary statistics of population made public in August, the population of England, Wales and Scotland, figured as of June 19, was 42,767,530. This total was the largest ever recorded in the country, and exceeded the number returned in the previous census of 1911 by 1,814,750. But this increase was numerically only about one-half of the increase during the preceding decade and proportionately far lower than in any other decade recorded. The following tables show the changes in the population by births, deaths, etc., by decades, table A, page 293, showing these variations in comparison with those of preceding intercensal periods:

In Table B, page 293, the variations are shown for individual years from 1911-20, in order that the important changes in the amount and direction of the several movements which have taken place since 1911 may be more precisely located.

The natural increase, that is, the excess of

births over deaths, continued down to 1914 at approximately the same rate, but after the latter date the continuity was broken. During the years, 1915-18, the fall in the birth-rate was greater than ever before, being from twenty to twenty-five per cent below normal. After the war ceased in 1918 large increases were recorded, but fall far short of making up for the deficiencies of war time. The deaths including the deaths of soldiers showed no such decline down to the close of the year of 1918. After 1918, however, there was a marked reduction which with the increase of births above mentioned, gave a natural increase in 1920 greater than ever before recorded.

Another feature of the census was the increasing preponderance of females over males, the figures for England being males, 16,984,987 and females 18,694,443; for Wales, males 1,098,133 and females 1,108,579. In Scotland the excess of females was over 180,000. The total excess of females in the United Kingdom was placed at about 1,906,000.

As to the cities, London remained the largest city of the world with a population of 7,476,176. The second city of the British Isles was Birmingham, with 199,438; Liverpool continued to stand third and Manchester fourth. Sheffield had 490,724; Leeds, 458,320; and Bristol, 377,061. If the population of Manchester, however, is combined with that of the adjoining town of Salford, it would stand next to London, with a population of 946,701.

The population of India was placed at 319,075,132, an increase of nearly four millions over the census of 1911; Australia, 5,426,008, an increase of a little less than one million; New Zealand, 1,218,270, not counting the Maoris, an increase of 200,000; South Africa, inclusive of natives, 1,531,635, an increase of 150,000.

For the first time since 1821, the census did not

include the population of Ireland, but assuming that the rate of decrease remained the same since 1847, the population would be 4,200,000, a decrease of 190,000 since 1911. The estimated population of the United Kingdom would thus come out at 47,000,000.

EDUCATION. In 1919 the number of elementary schools in England and Wales was 21,473, and the number of pupils enrolled, Jan. 31, 1919, was 5,917,854. The average attendance in 1918-19 was 5,108,000. In Scotland the elementary schools in 1919 numbered 3359 with 725,066 in attendance. In Ireland in 1918 the elementary schools numbered 80,002 with 488,031 in attendance. The universities suffered a great falling off during the war but rapidly recovered it afterwards. The following table from the *Statesman's Year Book* of 1921 estimates the number of members in the teaching staffs and the number of students in the universities of

TABLE A

<i>Intercensal period</i>	<i>Intercensal increase of population</i>	<i>Births registered in England and Wales</i>	<i>Deaths registered in England and Wales</i>	<i>Excess of births over deaths</i>	<i>Loss representing balance of outward over inward passenger movement</i>
1871-1881.....	3,262,173	8,604,710	5,178,230	3,426,480	164,307
1881-1891.....	3,028,086	8,893,920	5,264,445	3,629,475	601,389
1891-1901.....	3,525,318	9,187,181	5,593,525	3,593,656	68,338
1901-1911.....	3,542,649	9,290,633	5,245,765	4,044,868	502,219
1911-1921.....	1,814,750	8,275,400	5,266,900	3,008,500	* 1,193,750

* Including the deaths of non-civilians of England and Wales which occurred outside the United Kingdom.

TABLE B

<i>Calendar year</i>	<i>Births in England and Wales</i>	<i>Deaths in England and Wales</i>		<i>Excess of births over deaths in England and Wales</i>	<i>Deaths of non-civilians belonging to England and Wales which occurred at the various theatres of war</i>	<i>Balance of civilian passenger movement between the U. K. and other countries as returned by the Board of Trade</i>
		<i>Civilian</i>	<i>Non-civilian</i>			<i>+ = Inward</i> <i>- = Outward</i>
Yearly { 1901-05.....	938,654	534,313	†	404,341	†	- 107,309
Average { 1906-10.....	920,988	515,442	—	405,546	—	- 163,053
1911.....	881,138	527,810	—	353,328	—	- 241,151
1912.....	872,737	486,939	—	385,798	—	- 241,734
1913.....	881,890	504,975	—	376,915	—	- 203,611
1914.....	879,096	514,886	1,856	362,354	—	+ 106,688
1915.....	814,614	553,476	8,777	252,361	—	+ 36,147
1916.....	785,520	497,145	11,072	277,303	—	+ 1,832
1917.....	668,346	486,965	11,957	169,424	560,000	- 13,298
1918.....	662,661	587,828	24,033	60,800	—	- 14,850
1919.....	692,438	495,478	8,725	188,235	—	- 152,642
1920.....	957,782	464,680	1,450	491,652	—	- 166,686

* The total of the deaths shown in these two columns is taken from figures supplied by the War Departments and includes the "Missing, Presumed Dead." The number assignable to the population of England and Wales is not known, and the allocation is based on the numbers recruited in the several portions of the United Kingdom which give about 86 per cent. to England and Wales.

† Non-civilian deaths are included in this column for the years 1901-1913.

Great Britain and Ireland in 1920-21 as follows:

<i>Universities</i>	<i>Numbers of professors, &c.</i>	<i>Number of students</i>
England—		
Oxford.....	100 ^a	4,200 ^a
Cambridge.....	160	4,360 ^a
Durham.....	174	1,250
London.....	1,250 ^b	7,000 ^a
Manchester.....	265	3,000
Birmingham.....	187	1,880
Liverpool.....	224 ^c	2,540 ^d
Leeds.....	250	1,930 ^d
Sheffield.....	169	3,100 ^d
Bristol.....	210 ^a	1,000 ^a
Total for England.....	2,989	30,260
Scotland—		
St. Andrews.....	106	830
Glasgow.....	188	4,500
Aberdeen.....	117	1,600
Edinburgh.....	242 ^d	4,300 ^d
Total for Scotland.....	653	11,230
Ireland—		
Dublin (Trin. Col.).....	80	1,400
Dublin (National).....	200 ^a	1,800 ^a
Belfast.....	73 ^d	1,300 ^a
Total for Ireland.....	353	4,500
Wales.....	220^d	2,500^d
Totals of above.....	4,215	48,490

^a Comprising about 200 professors, readers, and lecturers and 1,050 "recognised teachers," and "appointed teachers."

^b Undergraduates, 1919-20.

^c Internal students. In addition there are external students who comprise all surviving undergraduates of the University who have not taken a degree nor been registered as internal students. The number is not ascertainable.

^d Year 1919-20.

^e Includes evening students.

^f Estimated.

PRODUCTION. The following table from the *Statesman's Year Book* of 1921 shows the number and size of the holdings in 1920:

<i>Size of holdings, 1920</i>	<i>England and Wales</i>	<i>Scotland</i>	<i>Great Britain</i>
1- 5 acres.....	80,737	17,471	98,208
5- 50 acres.....	194,059	32,683	226,741
50-300 acres.....	129,703	23,224	152,927
Over 300 acres.....	13,492	2,525	16,017
Total.....	417,991	75,902	493,893

The tables at top of page 294 from the *Statesman's Year Book* of 1921 show the cultivated area by crops and the produce and live stock in 1913, 1919, and 1920.

LIVE STOCK

	<i>1913 (prewar) Number</i>	<i>1919 Number</i>	<i>1920 Number</i>
Horses *.....	1,874,264	1,914,933	1,884,902
Cattle.....	11,936,600	12,491,427	11,770,274
Sheep.....	27,629,206	25,119,220	23,407,072
Pigs.....	3,305,771	2,925,093	3,113,314

* Horses for agriculture, mares kept for breeding, and unbroken horses.

MINERAL PRODUCTION. The third table on page 294 gives the quantities and values of minerals produced in the United Kingdom in 1918 and 1919.

CULTIVATED AREA BY CROPS

	1913 (prewar) Acres	1919 Acres	1920 Acres
Cultivated area:			
Corn crops.....	8,211,641	10,105,323	9,379,614
Green crops.....	3,984,734	3,894,590	4,236,724
Flax.....	59,953	115,039	21,003
Hops.....	35,676	16,745	87,439
Small fruit.....	100,094	84,837	573,963
Bare fallow.....	396,472	657,885	31,774,000
Clover and mature grasses.....	6,643,146	31,452,000	46,073,000
Permanent pasture.....	27,309,188		
Total.....	46,740,904	46,326,000	

PRODUCE

United Kingdom	Wheat 1000 quarters	Barley or bere 1000 quarters	Oats 1000 quarters	Beans 1000 quarters	Pean 1000 tons	Potatoes 1000 tons	Turnips and swedes 1000 tons	Mangold 1000 tons	Hay 1000 tons
1913 ¹	7,087	8,204	20,660	954	423	7,605	25,313	9,276	15,395
1919.....	8,665	7,213	25,495	888 ¹	442 ¹	8,312	22,792	7,769	10,708
1920.....	7,104	8,211	22,609	984 ¹	444 ¹	6,374	25,992	8,682	14,700

¹ Excluding Ireland.

QUANTITIES AND VALUES OF MINERALS

Minerals	1918 Tons	1919 Tons	1918 Value £588	1919 Value £545
Alum shale.....	5,231	4,848	4	667
Antimony ore.....	1	75	210,101	100,223
Arsenical pyrites.....	477	2,527	218,592	198,550
Arsenic.....	2,349	2,527	2,736	2,811
Barium (compounds).....	66,360	60,087	151	761
Bauxite.....	9,589	9,221	164,741	241,863
Bog ore.....	603	3,045	13,233	15,348
Chalk.....	2,304,248	2,629,406	100	150
Chert, flint, etc.....	54,518	50,082	1,696,127	2,358,522
Chromite of iron.....	140	150	233,240,760	314,113,160
Clay and shale.....	6,003,787	7,765,965	5,585	1,120
Coal.....	227,748,654	229,779,517	11,584	9,858
Copper ore.....	1,013	144	41,310	36,252
Copper precipitate.....	201	223	291,627	336,421
Fluorspar.....	53,498	36,860	108,516	138,368
Gravel and sand.....	2,022,567	2,048,427	1,139,952	1,720,932
Gypsum.....	175,734	320,003	7,106,656	7,423,366
Igneous rock.....	3,961,524	4,387,703	20,398	256,377
Iron ore, exclusive of micaceous iron ore.....	14,613,032	12,264,195	273,462	100
Iron pyrites.....	22,195	7,336	1,992,705	2,431,627
Lead ore.....	14,784	13,968	33,313	25,111
Lignite.....	150	.....	17,926	17,483
Limestone other than chalk.....	10,156,608	9,537,495	1,528,584	1,567,050
Manganese ore.....	17,456	12,078	1,647,997	2,079,011
Ochre, umber, etc.....	9,480	10,547	614,612	971,329
Oil shale.....	3,080,867	2,763,876	429,583	844,394
Salt.....	1,976,014	1,908,080	1,268	1,011
Sandstone.....	1,553,151	1,699,853	2,290	4,210
Slate.....	110,197	164,098	1,115,926	678,632
Soapstone.....	936	688	49,215	19,255
Sulphate of strontia.....	1,014	1,872	95,680	62,202
Tin ore (dressed).....	6,378	5,156		
Tungsten ores.....	302	166		
Zinc ore.....	9,025	6,933		
Total¹.....	273,985,078	275,384,528	257,079,792	335,673,503

¹ Exclusive of the production of phosphate of lime (3372 tons in 1918) and of natural gas (85,000 cubic feet in 1918 and 90,000 cubic feet in 1919), the value of which is not stated.

In 1919 the total number of persons employed in the mines under the Regulation Acts was 1,212,974 of whom 958,133 were males working underground and 9647 females above ground. The mines in operation numbered 3438. The amount of coal available for home consumption exclusive of that used in operating the coal mines was placed at 162,000,000 tons. The following table from the *Statesman's Year Book* of 1921 shows the exports of coal in 1920 to foreign countries.

Countries	Weight, tons	Value £
France.....	11,691,000	42,301,000
Italy.....	2,908,000	11,759,000
Sweden.....	1,372,000	6,258,000
Gibraltar.....	1,134,000	5,570,000
Denmark.....	1,040,000	4,748,000
Egypt.....	983,000	4,505,000
Norway.....	801,000	3,907,000
Belgium.....	671,000	1,974,000
Algeria.....	511,000	2,286,000
Malta & Goso.....	421,000	1,607,000

Countries	Weight tons	Value £
Canaries.....	382,000	1,931,000
Portugal.....	301,000	1,287,000
Spain.....	290,000	1,351,000
Portuguese W. Africa.....	281,000	1,395,000
Argentina.....	274,000	1,139,000
Holland.....	239,000	924,000
Brazil.....	168,000	727,000
Uruguay.....	117,000	430,000
Russia.....	93,000	410,000

The blast furnaces in operation in 1919 numbered 280, the ore smelted amounted to 19,044,272 tons, and the pig iron produced to 7,417,401 tons.

TEXTILES. The following table from the *Statesman's Year Book* of 1921 shows the production of the respective branches of the textile industry in three-year periods from 1911 to 1919, and for the year 1920:

Annual average: Periods of three years	Weight consumed in millions of lbs.				Value of products exported (in thousands of £'s)			
	Cotton	Wool	Flax	Total	Cotton	Woolen	Linen	Total
1911-1913.....	2,074	791	237	3,102	123,167	34,194	9,403	166,767
1914-1916.....	1,854	816	225	2,895	102,548	36,545	8,909	148,002
1917-1919.....	1,623	835	121	2,579	189,000	68,800	14,100	271,900
1920.....	1,560	865	67	2,492	401,700	135,000	23,900	560,600

FISHERIES. In 1920 the fish taken in Great Britain and Ireland according to provisional figures amounted to 1,072,749 tons valued at £28,162,924. The total net tonnage of craft engaged in fishing, Jan. 1, 1919, was 335,510, and the total number of craft, 33,796.

ECONOMIC CONDITIONS. Reports of basic industries at the close of the year manifested a very low ebb of production, the lowest, in fact, for many years. The production of pig iron during 1921 amounted to 2,500,000 tons; coal, 168,000,000 tons; and steel ingots, 3,500,000 tons. During 1920 production of these items was: Pig iron, 8,007,900 tons; steel ingots, 9,056,800 tons; and coal, 229,295,000 tons. Indications during the latter part of the year, however, showed that England was rapidly assuming absolute control over her former coal markets. One of the beneficial effects of the coal-strike settlement was to be found in the increased per capita production. The week ended December 17 marked the largest weekly production and export of coal had during the entire year. The foreign demand for British coals was on the upgrade, while ocean freight rates were on the downward gradient. The ocean freight for coal to South America in December was at 13s. 6d. per ton, which was lower than the prewar level.

UNEMPLOYMENT. The serious conditions of unemployment which had marked the closing months of 1920 continued throughout 1921. It was reported that on Jan. 23, 1921, the number of unemployed had reached 1,060,000, including many ex-service men. The government made a proposal in February that the building industry should take on ex-service men for the relief of unemployment, but the proposal was indignantly rejected by the organized labor of the building industry. On July 1, the number of the unemployed was placed at 2,170,000. After that there was a decrease and on September 1 the number was estimated at 1,527,000. During the same period the partially employed fell from 1,000,000 to 400,000. But while an improvement appeared so far as numbers were concerned, the situation

was worse in respect to the funds available to the unemployed workers. The means of insurance against unemployment were becoming exhausted and on September 1, there were about 300,000 workmen who had no other assistance than the government allowance. The system of government allowances was regarded as a temporary expedient merely and it was feared that if it were extended it would tend to prolong the crisis besides laying heavy charges on the country. Before the adjournment of Parliament, Lloyd George had created a special committee of cabinet ministers under Sir Alfred Mond, Minister of Hygiene, to propose measures for the aid of the unemployed in the course of the coming winter. The government down to October seemed not to have any definite plan in view. The prime minister had held conferences with representatives of all

the groups of workmen and was reminded by them of the recommendations made at the Congress of Cardiff, which included, among other requirements, that the government should encourage a return to normal production by ordering provisions and articles that could be exported on credit, by putting into execution large public works both national and local, and by bestowing on the workmen who in spite of these measures still should remain unemployed, a sufficient means of livelihood. There was difficulty in the way of undertaking public works in that the mass of unemployed lacked the technical skill required, and the cost of transporting the workers to the places where they were needed would be extremely heavy. The Labor party refused any active co-operation with the government. According to many writers all such measures were merely transitory and the only real cure was a resumption of work in the community at large. In his address at Inverness, Lloyd George himself had made this point, saying that it was better to create work than to pay indemnities and that business could only be reestablished when the fluctuations of exchange came to an end. There was need of concentrated efforts, rigorous economy, and close co-operation on the part of the nations to stabilize exchange. A number of writers argued from this that it was necessary to relax the demands on Germany because the fall of the mark prevented the return to normal business conditions. An aspect of the situation that alarmed many observers was the attempt of the Communists to take advantage of it in order to stir up agitation of a revolutionary character. In some quarters demonstrations of the unemployed were organized by Communists. Persons terrified by the conditions in Russia saw in this the penalty for a too easy-going policy on the part of the British government toward the Soviets.

Various incidents were reported in the press showing the seriousness of unemployment throughout the country. For example, on one occasion an advertisement in the newspapers for employees in a lumber yard, where only 50 workmen were

required brought responses from 5000 and led to riots. The riotists wrecked the company's office and were with difficulty driven out. On August 31, thirty labor members of the Borough Council of London decided that they would endure imprisonment rather than obey an order requiring them to raise rates for London services under the County Council and there were several other instances of like character. There were riots in London and other cities in September and on September 22 the Parliamentary Committee of the Trades Union Congress issued a statement to the effect that the government must provide work and the charge must not be made a local burden. The problem was discussed in Parliament and in the Ministry in the hope of finding a solution, but without success. According to figures published in the first eight months of the year, the number had declined on September 16 to 1,469,700 and at this time the decline appeared to be rapidly continuing. The difficulty with the providing sums from the localities was that these localities were breaking down under the strain. This method did not distribute the burden in the right proportion. For example, in one London district on the east side where the population numbered 167,000 the recipients of relief numbered 18,000. In the autumn it was said that unless business revived it would be necessary to maintain at the public charge about 1,000,000 idle men and this would amount to £100,000,000 annually. In response to the need of providing public works the Admir-

COMMERCE. Preliminary net figures for British foreign trade during the year 1921 show an unfavorable trade balance of approximately £50,000,000, as compared with a favorable trade balance of £165,000,000 for the year 1920. Visible trade figures for the year 1921 show an unfavorable balance of approximately £176,000,000 as compared with an unfavorable balance of £379,000,000 in the same items during 1920. This shows that British invisible exports during 1921 amounted to about one-half those of 1920. The Board of Trade, in a carefully prepared statement as regards British trade in invisible items during 1920, placed their total amount at £500,000,000. It appears this half billion, derived during 1920 from shipping earnings, dividends, and interests on foreign investments, insurance, and commercial services, and other items included in the invisible trade of Great Britain, shrank to approximately £220,000,000 during 1921, leaving the above-mentioned net unfavorable balance. The invisible exports of Great Britain during 1913 may be approximated at one-third of a billion.

A marked decline was shown in every branch of British foreign trade during the month of December as compared with November. The total foreign trade of Great Britain during the year 1921 was 55 per cent in value of the total trade for the year 1920. The following table shows the status of British foreign trade during the month of December and the entire year as compared with the periods mentioned:

COMPARISON OF BRITISH FOREIGN TRADE				
Date	Imports £	Exports £	Re-exports £	Total £
December:				
1921.....	85,312,000	59,375,000	9,204,000	153,891,000
1920.....	142,785,000	96,631,000	12,699,000	252,115,000
1919.....	169,603,000	90,858,000	26,160,000	286,621,000
1913.....	71,115,000	43,328,000	9,728,000	124,171,000
November, 1921.....	89,259,000	62,895,000	9,823,000	161,977,000
12 months:				
1921.....	1,086,878,000	703,197,000	107,052,000	1,897,127,000
1920.....	1,936,742,000	1,335,569,000	222,406,000	3,494,717,000
1919.....	1,828,156,000	798,638,000	164,746,000	2,589,540,000
1913.....	768,735,000	525,254,000	109,567,000	1,403,556,000

alty announced October 8 that it would sell old warships at low prices which could be broken up by firms that would undertake to begin the work as soon as the sale was completed. Various suggestions were made for relief, including plans for rationing the country. In London twenty-nine councilors were arrested for violating the regulations of local taxation but they were released in September. A large parade of the unemployed reported to include some 20,000 men passed through the streets of London in September bearing among other devices "Bread or Revolution." On November 4 there were about 1,722,800 on the registers of the employment agencies who were classed as wholly unemployed, an increase of 100,000 from the previous week. Figures for the entire year were not available, but according to the reports of the Ministry of Labor down to the end of November 6,973,000 suffered reductions amounting to about £5,563,000 a week, the trades most affected being mining, engineering, shipbuilding, textiles, iron and steel, transport, and the building trades. In December the unemployment returns indicated a decrease. There were at that time about 2,100,000 names on the unemployment registers as compared with 2,427,500 six months before.

European customers took 37 per cent of British exports in 1913. Contrary to a rather common impression, the period since the armistice has not shown a proportionate loss of continental markets to Great Britain but actually registers an increase to 44 per cent for the period from Jan. 1, 1919, to Sept. 30, 1921. As the London *Economist* goes on to show, during the last portion of this interval, from July to October, 1921, six of the principal European markets improved their position over the first months of the year. Only Italy and Spain showed a decline. Summary tables for British export trade are here reproduced from the *Economist*:

PERCENTAGE OF BRITISH TRADE TAKEN BY VARIOUS COUNTRIES IN 1913, 1920, AND 1921			
Countries	1913 P. ct.	1920 P. ct.	* 1921 P. ct.
Europe:			
France.....	6.4	11.3	6.4
Belgium.....	3.3	4.4	3.5
Holland.....	3.2	4.0	4.4
Germany.....	9.5	3.3	5.0
Italy.....	2.4	3.0	2.3
Denmark.....	1.0	2.2	1.3
Sweden.....	1.4	2.9	1.3
Others.....	10.4	9.3	9.6
Total.....	37.6	40.4	33.8

* Figures for January 1 to September 30.

Countries	1913 P. ct.	1920 P. ct.	* 1921 P. ct.
British Empire:			
British India.....	11.3	11.8	14.0
Australia.....	6.0	4.4	6.0
Union of South Africa.....	3.8	3.3	4.0
Canada.....	4.3	3.1	2.7
Egypt.....	1.6	3.0	2.1
Others.....	7.4	8.2	10.0
Total.....	34.4	33.8	38.8
America and Asia:			
United States.....	9.3	8.4	8.0
Argentina.....	3.7	2.8	3.7
China.....	2.4	2.8	3.3
Others.....	9.2	8.3	7.5
Total.....	24.6	22.3	22.5

* Figures for January 1 to September 30.

FINANCE. The British budget for 1921-22 was introduced in the House of Commons, April 25. No new taxes were proposed, nor were there any changes in existing rates of duty apart from reduction in the taxes on sparkling wines and imported cigars. The only novel and unexpected feature of the budget was the provision for a conversion loan designed to deal with debt maturing during the next four years. Holders of this debt (amounting to about £800,000,000 in 5 per cent bonds) were offered in exchange a yield of nearly 5½ per cent

in a 3½ per cent issue irredeemable before 1961. The budget statement showed that for the past year there was a revenue of £1,425,000,000 and a realized surplus of £230,000,000. For the current year the estimate of revenue had shrunk to £1,216,000,000 while the estimated surplus of £177,000,000 was subject to so many contingencies that it seemed doubtful whether it would suffice to meet internal and external debt maturing during the year. The government, in the budget, renewed its pledge to do away with the excess-profit tax. The principal taxes, which remained unchanged were: Income tax, 6d. in the pound; supertax, from 1s. 6d. to 6d. in the pound, according to size of income; corporation tax, 1s. in the pound on profits of limited liability companies after first £500; motor bicycles, £1 10s. if not over 200 pounds weight; £3 over 200 pounds; £4 with side car; beer and spirits, duty on beer, over £5 per barrel; on spirits, 75s. 4d. per proof gallon; postage minimum rates: Letters, 2d.; newspapers, 1d.; post cards, 1d.; telegrams, minimum (12 words), 1s.

The following table shows how the expenditure was to be provided in 1921-22, compared with the expenditure in 1920-21, as estimated in April, 1920:

Expenditure	Estimate, 1920-21 £	Estimate, 1921-22 £	Increase (+) or decrease (—) in 1921-22 £
National debt services:			
Interest, etc., inside the fixed debt charge.....	24,500,000	24,500,000	.....
Interest, etc., outside the fixed debt charge.....	320,500,000	320,500,000	.....
Total national debt services.....	345,000,000	345,000,000	.....
Road improvement fund.....	6,650,000	8,400,000	+ 1,750,000
Payments to local taxation accounts, etc.....	10,818,000	11,115,000	+ 297,000
Land settlement.....	12,000,000	5,000,000	— 7,000,000
Other consolidated fund services.....	1,730,000	1,757,000	+ 27,000
Total consolidated fund services.....	376,198,000	371,272,000	— 4,926,000
Army (including ordnance factories).....	125,000,000	106,665,000	— 18,335,000
Navy.....	84,372,000	82,479,000	— 1,893,000
Air force.....	21,067,000	18,411,000	— 2,646,000
Civil services.....	497,318,000	379,035,000	— 118,283,000
Customs and excise, and inland revenue departments.....	10,468,000	14,701,000	+ 4,233,000
Post office services.....	49,689,000	67,165,000	+ 17,476,000
Provision for supplementary estimates.....	20,000,000	.....	— 20,000,000
Total supply services.....	807,904,000	668,456,000	— 139,448,000
Grand total, expenditures.....	1,184,102,000	1,039,728,000	— 144,374,000
Estimated expenditure chargeable against capital.....	10,366,000	10,472,500	+ 106,500

To defray these outlays the government estimated that it would have the following sums:

Revenue	Receipts in 1920-21 £	Estimate for 1921-22 on basis of exist- ing taxation £	Increase (+) or decrease (—) in 1921-22 £
Customs.....	134,003,000	126,800,000	— 7,203,000
Excise.....	199,782,000	196,200,000	— 3,582,000
Total.....	333,785,000	323,000,000	— 10,785,000
Motor vehicle duties.....	7,073,000	9,000,000	+ 1,927,000
Estate, etc., duties.....	47,729,000	48,000,000	+ 271,000
Stamps.....	26,591,000	21,000,000	— 5,591,000
Land tax and house duty.....	2,550,000	2,500,000	— 50,000
Income tax (including super tax and mineral rights duty).....	394,166,000	410,500,000	+ 16,334,000
Excess-profits duty, etc.....	219,181,000	120,000,000	— 99,181,000
Corporation profits tax.....	650,000	30,000,000	+ 29,350,000
Total receipts from taxes.....	1,031,725,000	964,000,000	— 67,725,000
Postal service.....	36,100,000	43,000,000	+ 6,900,000
Telegraph service.....	5,200,000	5,000,000	— 200,000
Telephone service.....	8,200,000	12,000,000	+ 3,800,000
Total.....	49,500,000	60,000,000	+ 10,500,000
Crown lands.....	660,000	650,000	— 10,000

<i>Revenue</i>	<i>Receipts in 1920-21 £</i>	<i>Estimate for 1921-22 on basis of exist- ing taxation £</i>	<i>Increase (+) or decrease (-) in 1921-22 £</i>
Receipts from sundry loans, etc.:			
Ordinary receipts.....	991,000	—	12,000,000
Special receipts.....	29,780,000	—	—
Miscellaneous:			
Ordinary receipts.....	25,389,000	21,500,000	— 3,889,000
Special receipts.....	287,940,000	158,500,000	— 129,440,000
Total receipts from nontax revenue.....	394,260,000	252,850,000	— 141,610,000
Grand total revenue.....	1 425,985,000	1,216,650,000	— 209,335,000
Borrowings to meet expenditure chargeable against capital.....	6,087,000	10,472,500	+ 4,385,500

RAILWAYS. At the beginning of 1920 the railway mileage was 23,725.

The yearly statistics of the Ministry of Transport for the year 1920 show gross receipts for Great Britain of \$1,240,000,000 (without the government compensation) as against an expenditure of \$1,224,000,000, which gives an operating ratio of 98.8 per cent. The government compensation amounted to \$213,000,000. Important increases were made in rates and fares during 1920, the increases affecting all departments of traffic. Freight rates were increased by about 50 per cent on Jan. 15, 1920, and again on Sept. 1, 1920, bringing the average up to about 112 per cent over prewar rates. Passenger fares were increased on August 6, 1920, by 16½ per cent, making an increase of 75 per cent over prewar rates. Likewise season ticket rates were advanced to 50 per cent above prewar level and for workmen's fares a mileage scale was adopted on Sept. 1, 1920, with a maximum increase of 200 per cent, or 50 cents a week, whichever was less. These advances were made during a period of high prices and wages gradually prevalent, but the coal strike of 1920 and the great trade depression of 1921 put a different face on the matter.

The total engine mileage of all railways in Great Britain in 1920 was 575,576,239 miles, or an increase of 8.03 per cent over that of the year 1919. Train mileage was 378,070,430, as against 348,911,830 in the year 1919. The average receipts per train-mile from passenger train traffic, however, fell from \$2.55 to \$2.40, but from freight train traffic they rose from \$2.48 to \$4.20.

The number of first-class passengers carried during the year 1920 was 37,675,085, or 15.62 per cent less than the previous year, but the average receipt per first-class passenger rose from 97 cents to \$1.09. There were 1,096,585,156 third-class passengers carried, or an increase of 1.21 per cent over the year 1919, and the receipt per passenger was 30 cents as against 27.4 cents for the year 1919. In second-class passengers there was an increase of 6.90 per cent over the previous year. For all ordinary passenger journeys the average receipt increased from 30.22 cents to 32.74 cents.

As regards freight the total tonnage carried was 323,971,117, or an increase of 4.21 per cent as compared with 1919. In coal, coke and patent fuel there was an increase of .65 per cent, and in other minerals an increase of 20.81 per cent. The total receipts per ton for all railways were \$1.89 as against \$1.05 in 1919.

The year 1921 in many respects may be said to have marked a turning point in regard to British railways, and also in other ways was one of unusual importance. In the first place there was of

course the complete change or entire abandonment of war methods of control, and the beginning of efforts to assimilate to the new conditions which a somewhat radical Railway Act introduced in Parliament on May 12, and becoming a law during the year after three months of debate, established. Furthermore there was a serious coal strike during the year, a marked decline in traffic due to general business conditions, and finally a situation complicated by labor and other considerations. Thus with the return to private ownership and operation the British railways were called upon to face a serious general financial condition, while at the same time future developments, it was realized, must be along lines quite out of keeping with the regular progress and evolution of the half century or more in which the British railway systems had been made effective, by a process of steady and orderly development. In 1921 there was not only the slump in traffic referred to but an increase in expenses and particularly in wages which were about 200 per cent higher than those in force before the war. The new railway bill sought to keep up the wages and reduced working hours in the face of rates that were admittedly too high, and the chief effort was by a process of consolidation which it was hoped would secure economy of management. In this work, and to comply with the provisions of the plan it was believed that many transformations would be necessary.

The new act was in large measure the result of the effects of the ministry of transport under Sir Eric Geddes. The leading and most revolutionary feature was the policy of grouping on a regional basis.

Under the new law which for this grouping does not include the underground or subway systems in and about London the British railways are divided into four main groups on a regional and non-competitive basis, the aim of the consolidation being the "reorganization and more efficient and economical working of the railway system of Great Britain." The four different groups are as follows:

1. Southern group—London and Southwestern; London, Brighton and South Coast; South Eastern; London, Chatham and Dover.
2. Western group—Great Western.
3. The Northwestern and Midland group—London & Northwestern; Midland; Lancashire & Yorkshire; North Staffordshire; Furness; Caledonian; Glasgow & South Western; and Highland.
4. The Northeastern Group—North Eastern, Great Central; Great Eastern; Great Northern; Hull & Barnsley; North British; and Great North of Scotland railways.

The act secures to the government an active

measure of control in that it gave the Railway and Canal Commission or the Minister of Transport authority to require any railway company to afford reasonable railway services, facilities, and conveniences which were proved to be necessary, unless the railway company could prove that any such undertakings would affect prejudicially the interest of the stockholders.

The Minister of Transport was to have the authority to require any or all railways to conform gradually to general standardisation of way, plant, and equipment, and to adopt plans for the coöperative use of rolling stock, shops, and other facilities; unless the railway companies affected could prove to the satisfaction of the Railway and Canal Commission that the order was such that the capital expenditure involved would prejudicially affect the stockholder's interest. Existing leases or working agreements might be continued with the approval of the Minister, and all future agreements of this nature must receive this sanction.

Regulation of rates was provided for in the act, and these were to be fixed on such a basis as to yield the aggregate net revenue for 1913, plus a sum equal to 5 per cent on capital expenditures made by the railway during government control, plus a reasonable allowance for capital expenditures on revenue-producing improvements (not to be less than £100,000 for any individual improvement) which at the beginning of 1913 had not become fully remunerative.

A Railway Rates Tribunal, consisting of three permanent members was established in which was vested authority over railway rates. Three permanent members, who are to hold office not more than seven years, are appointed by the King on the joint recommendation of the Lord Chancellor, the President of the Board of Trade, and the Minister of Transport. Diversity of interests represented is secured by the fact that the chairman must be a railroad man, one of the members a lawyer and the other a business man.

Anticipating that at times a larger rates tribunal might be required, two panels, one made up of twelve shippers appointed by the president of the Board of Trade and another, consisting of twelve members representing the railways and appointed by the Minister of Transport after consultation with the Railway Companies' Association, were provided. The Minister is given authority to select two, one from each panel to serve temporarily on the Rates Tribunal.

The Rates Tribunal was given power to prescribe in relation to the carriage of passengers and merchandise by railway—

- (a) The rates applicable to the carriage of merchandise and the conditions under which those rates shall apply;
- (b) The conditions under which exceptional rates may be charged;
- (c) The charges to be made as station and service terminals and the accommodation and services to be included in those charges;
- (d) The fares for the conveyance of passengers and their luggage and the articles and things that may be conveyed as passengers' luggage;
- (e) The conditions under which fares less than the standard fares may be charged;
- (f) The conditions (other than those relating to dangerous goods) upon which merchandise shall be carried by railway;

Furthermore the Rates Tribunal was given authority to determine any question brought before it in regard to the following:

- (a) The alteration of the classification of merchandise or of any article, or the classification of any article not at the time classified, or any question as to the class in which any article is classified.
- (b) The variation or cancellation of through rates.
- (c) The institution of new, and the continuance, modification, or cancellation of existing group rates.
- (d) The variation of any toll payable by a shipper.
- (e) The amount to be allowed for any terminal services not performed at a station, or for accommodation and services in connection with a private siding not provided or performed at that siding.
- (f) The reasonableness or otherwise of any charge made by a railway company for any services or accommodation for which no authorized charge is applicable.
- (g) The reasonableness or otherwise of any conditions as to packing of articles specially liable to damage in transit or liable to cause damage to other merchandise.
- (h) The articles and things that may be conveyed as passengers' luggage.
- (i) The constitution of local joint committees and their functions and the centres at which they are to be established.

One feature of the British Railways Act was that the Central Wages Board, which was to have jurisdiction over wage disputes, would have sixteen members, eight of whom were to represent the railways, four the National Union of Railwaymen, two the Associated Society of Locomotive Engineers and Firemen and two the Railway Clerks' Association. The National Wages Board, which has final jurisdiction, was made to include six representatives of the railway companies, two representatives of the National Union of Railwaymen, two representatives of the Associated Society of Locomotive Engineers and Firemen, two representatives of the Railway Clerks' Association and four representatives of the users of railways, with an independent chairman nominated by the Minister of Labor.

ARMY. During 1920 the army was rapidly transformed to a peace basis. The military system provides for a regular and territorial army, the troops in the former serving both at home and overseas and the latter only at home in peace time. The forces are under an army council composed of a Secretary of State for War who acts as president, and the heads of the seven departments of the War Office. The total number of regular troops, March 1, 1921, was about 341,000 of whom 201,000 were British, about 84,200, Indian and colonial troops; and 55,600, men temporarily carried in the service, after the war. The distribution of the troops at that time was as follows: Home garrison, 140,500; Mesopotamia, 77,000; Palestine, 18,000; in occupation of the Rhine and certain areas under plebiscite, 15,000; at Constantinople, 9300; the territorial army numbered about 100,000.

NAVY. The following table from the *Statesman's Year Book* of 1921 summarizes the classes of the fleet down to the beginning of 1921:

Class	Completed by end of		
	1919	1920	1921
Dreadnaughts.....	42	42	39
Pre-Dreadnaught battleships.....	21	8	—
Armored cruisers.....	34	—	—
Light cruisers.....	89	90	80
Destroyers.....	about 340		190
First class torpedo boats.....	about 96	1	?
Submarines.....	about 147		98

For later details see article **NAVAL PROGRESS.**

MINISTRY. At the beginning of 1921 the cabinet was constituted as follows:

Prime Minister and First Lord of the Treasury, Lloyd George; Lord Privy Seal and Leader of the House of Commons, Austen Chamberlain; Lord

President of the Council, A. J. Balfour; Chancellor of the Exchequer, Sir Robert S. Horne; Lord-Lieutenant of Ireland, Viscount Fitz Alan of Derwent; Chief Secretary for Ireland, Sir Hamar Greenwood; Lord Chancellor, Lord Birkenhead; Secretary of State for the Home Department, Edward Shortt; Secretary of State for Foreign Affairs, Earl Curzon of Kedleston; Secretary of State for the Colonies, Winston S. Churchill; Secretary of State for War, Sir L. Worthington-Evans; Secretary of State for India, E. S. Montagu; First Lord of the Admiralty, Lord Lee of Fareham; Secretary for Scotland, Robert Munro; President of the Board of Trade, Stanley Baldwin; Minister of Health, Sir Alfred Mond; Minister of Agriculture and Fisheries, Sir A. Griffith-Boscawen; President of the Board of Education, Herbert A. L. Fisher; Minister of Labor, T. J. Macnamara; Minister of Transport, Sir Eric Campbell Geddes; Attorney-General, Sir Gordon Hewart; Minister without Portfolio, Christopher Addison; Secretary of State for Air, F. E. Guest; Minister of Pensions, J. I. Macpherson; Chancellor of the Duchy of Lancaster, Viscount Peel; Director of Overseas Trade Department, P. Lloyd-Greame; First Commissioner of Works, Earl of Crawford and Balcarres; Solicitor-General, Sir E. M. Pollock; Postmaster-General, F. G. Kellaway; Paymaster-General, Sir J. Tudor-Walsh; Lord Advocate, T. B. Morrison; Solicitor-General for Scotland, C. D. Murray; Lord Chancellor of Ireland, Sir James H. M. Campbell; Attorney-General for Ireland, Denis S. Henry; Solicitor-General for Ireland, D. M. Wilson; Vice-President Department of Agriculture, H. T. Barrie.

HISTORY

The chief feature of internal affairs was the movement for the independence of Ireland, an account of which will be found in the article IRELAND. The principal events in foreign relations are discussed in the article on WAR OF THE NATIONS, and for the difficulties in EGYPT and INDIA, see those articles. A summary of other events follows below.

ADMINISTRATIVE CHANGES. Among the chief changes early in the year in the administrative personnel the following may be mentioned: W. L. Spencer Churchill became secretary of state for the colonies in place of Viscount Milner who resigned in February; Sir Laming Worthington-Evans became secretary of state for war in succession to Mr. Churchill; Lord Lee became chief lord of the admiralty in place of Walter Long who resigned in February; Sir Arthur Griffith-Boscawen became minister of agriculture and fisheries in succession to Lord Lee; Lord Edmund Talbot became Viceroy of Ireland under the Home Rule act in succession to Viscount French, being the first Catholic to be appointed to that office; Sir Robert S. Horne became chancellor of the exchequer in succession to Mr. Austen Chamberlain who on March 21 had been elected the Unionist leader in place of Andrew Bonar Law who had resigned March 17; Christopher Addison became minister without portfolio; F. E. Guest became secretary for air; Stanley Baldwin became president of the board of trade; Sir Alfred Mond became minister of health in succession to Christopher Addison; F. G. Kellaway became postmaster-general; the Earl of Crawford and

Balcarres became chief commissioner of works; Justin A. T. Lawrence became Lord Chief Justice in succession to Lord Reading who was appointed Viceroy of India.

The most important of these changes was the sudden resignation of Mr. Bonar Law on account of illness, March 17. This followed a series of defeats in the March elections in which the candidates of the Labor party won in four contests. In one contest, however, the government candidate defeated the Labor representative, Mr. Ramsey MacDonald. Another government defeat was that of Sir Arthur Griffith Boscawen, who, after appointment as Minister of Agriculture, was defeated for reelection, though he afterwards was elected from another constituency. The substitution of Sir Alfred Mond for Dr. Addison as Minister of Health gave rise to much discussion. Dr. Addison, during his administration, had exposed himself to criticism by his housing proposals and the new incumbent presented a programme of strict economy. The post of minister without portfolio was offered to Dr. Addison, but he forsook the government and joined the opposition after violently attacking the programme of his successor.

OPENING OF PARLIAMENT. The parliamentary session opened, February 15. The points emphasized in the King's speech were: Necessity of reducing expenditures; regret at the criminal violence in Ireland; recommendation of the passage of the unemployment insurance bill, the railway reorganization bill, the bill to safeguard essential industries, and the bills for the completion of land purchase in Ireland and the regulation of the liquor traffic. One of the first subjects at the opening session was unemployment, in regard to which the Labor members blamed the government for not making adequate provision. The government retorted with criticism of the unions, especially blaming the bricklayers' union for its refusal to admit ex-service men. In the vote that followed, the government had 262 against 84 for the Labor element, and it showed an equal strong majority when other features of its policy were brought into question, including its attitude toward German reparations and the trial of war criminals, and toward Ireland. It appeared that the government was not prepared to recommend the features of the Milner report which it promised to lay before Parliament. There was promise of a regrouping of parties owing to dissatisfaction of some members of the government party with the policy of the Coalition.

UNEMPLOYMENT INSURANCE. The severe crisis in unemployment has been described in another paragraph. Early in the session a new amendment to the Unemployment Insurance Legislation was introduced. This proposed a temporary renewal of the allowance of twenty shillings a week to unemployed ex-service men and the placing of them under the benefits of the insurance act, whose provisions were modified and extended. The extra benefits were to be payable immediately upon the passage of the bill, but the extra contributions were not to be levied until the opening of the new insurance year, July 4. The bill passed through the House of Commons, February 23-24, and was accepted by the House of Lords, no serious opposition developing in either house; and it received the royal assent March 3. In the summer the demand for government aid

of the unemployed became urgent owing to the fact that the benefits under the new insurance act were running out in many cases. Persons in need of the benefit, and unable to wait until the expiration of the period when it became due, again brought pressure for immediate relief upon the local authorities. Some of the Boards of Guardians responded, but a new issue was raised by the refusal of the Labor majority in the Borough Council of Poplar to impose the county rate on the ground that taxpayers could not pay it. The case came into the courts, which decided against the Poplar councilors, some of whom were subsequently sent to jail for contempt of court in refusing to obey the order. The government on September 8 informed the Boards of Guardians throughout the country that relief should not exceed the earnings of the lowest paid workers in the locality. Several other London districts followed the example of the Poplar Borough Council. On October 12 the Poplar councilors were released by order of the court. The difficulties occasioned by these events led to the passage of a measure known as the Local Authorities Act, which empowered the Minister of Health to appoint a receiver whenever a metropolitan borough should fail to meet the demand, and it also empowered the local authorities to issue short-term loans. In the case of a serious burden on the taxpayers, provisions were made for suspending the sinking fund payments, modifying provisions for repayment of loans, etc. For Scotland a special act was passed authorizing, for a limited period, the granting of poor relief to persons out of employment. Another measure for the relief of unemployment was the Forestry Act, permitting grants for afforestation under relaxed conditions, if unemployment needs were especially urgent.

REPEAL OF CORN PRODUCTION ACT. The legislation passed, at the close of the 1920 session, creating an elaborate administration for the control of agriculture, granting subsidies, making wage arrangements, etc., was repealed by a measure introduced for second reading, July 4. In spite of the opposition of the farming and laboring classes it was carried at the third reading in the House of Commons by a vote of 203 to 52 and was passed by the House of Lords, August 12, with certain amendments; it received the royal assent, August 19.

LICENSING ACT. In the closing days of the session a licensing measure was passed changing the restriction imposed on the sale of liquors under the Defense of the Realm Act. It permitted licensing magistrates to fix closing hours up to 11 P. M.; limited the total number of hours for sale in bars to nine; and required bars to close for two hours during the afternoon. It was carried August 17.

OTHER LEGISLATION. Other measures passed by Parliament included: An act preventing the use of captive birds in all shooting under artificial conditions; an amendment preventing the coursing of captive animals in inclosed spaces from which they could not escape; the trade facilities bill to aid public enterprises in finding capital; various measures pertaining to police pensions, public health officers, supreme court officers, etc. The autumn session of Parliament lasted from October 18 to November 10. On October 19 the Prime Minister outlined the government

programme in respect to unemployment. The chief points were as follows: Aiding public enterprises to find new capital for works that might serve to absorb unemployed men, the limitation being £25,000,000; the granting of £10,000,000 for trade relief work through the Boards of Guardians, or in the field of forestry and land drainage; an additional sum to be granted for the purpose of aiding ex-service men to emigrate; the extension of the guaranty under the Board of Trade export credit plan from 85 per cent to 100 per cent; the imposition of a levy for six months under the national insurance plan to provide additional benefits of five shillings for a wife and one shilling for each child up to a total of nine shillings. The last named proposal involved the introduction of the Unemployed Workers Dependence bill which was passed in spite of the criticism of the Labor element, and went into effect November 10.

COAL STRIKE. The decision of the government to discontinue control of the coal industry at the end of March led to a strike of coal miners. Attempts on the part of coal miners and coal operators to come to an agreement failed, March 24, the miners insisting on a standard rate throughout the country which was refused by the owners. The chief grievance of the miners against the government was its refusal of the demand that the government should aid the industry and provide funds necessary to keep the unprofitable mines at work at the current wage rate. On March 30 the Miners' Federation ordered its members to go on strike on the following day, including even the men at the pumps whose sudden withdrawal would involve the flooding of the mines. The government issued a royal proclamation, declaring a state of emergency. The strike went into effect, March 31, and on April 8 the railway men and the transport workers declared for a sympathetic strike to begin April 12. Meanwhile the Board of Trade had ordered the rationing of coal. On April 11 a conference between the parties to the dispute and the prime minister ended in failure, and the sympathetic strike was definitely fixed for April 14. On that day, however, an official of the miners implied a readiness on their part to discuss the wage question with the mine-owners and the government, provided that their other demands should be taken up later. Negotiations followed which resulted in averting the sympathetic strike. The miners, however, did not agree to a compromise proposed by their officials on April 14 although it was favored by the railway men and transport workers, and they insisted on a general strike. This had the effect of splitting up the celebrated Triple Alliance, and the orders for a sympathetic strike were withdrawn. The coal-miners' strike continued for twelve weeks, being complicated in the meanwhile by the refusal of the railway and transport men to handle imported coal. On June 28 the miners accepted the government's offer of a public grant of £10,000,000. The agreement further included a wage rate at twenty per cent above prewar wages, and a provision for the sharing of labor in the profits of the mines; the agreement to run until September, 1922, subject to termination a three months' notice.

IMPERIAL CONFERENCE. On June 20 the first imperial conference since the war was held in London, the delegates present being as follows:

For the United Kingdom, Lloyd George, Austen Chamberlain, A. J. Balfour, Winston Churchill; Canada, Arthur Meighen, Prime Minister; Australia, W. M. Hughes, Prime Minister; New Zealand, W. F. Massey, Prime Minister; South Africa, General Smuts, Prime Minister, Thomas Smartt, Minister of Agriculture, and Colonel H. Ments, Minister of Defense; India, E. S. Montagu, the Maharaja of Cutch, and Srinivasi-Sastri. On the day following the meeting the conference was urged by both General Smuts and Premier Hughes to invite Japan and the United States to a discussion of naval disarmament. The rights of dominions in foreign affairs was discussed on June 27 by Prime Minister Meighen of Canada who proposed that the governments of the dominions should be consulted on all questions of foreign policy affecting the empire as a whole; that no treaties or special alliances should be made without consulting the dominions, and that such treaties should be subject to the approval of the dominions' parliaments; that all questions between the United States and Canada should be settled in accordance with the advice of the dominion government; that the dominions should be kept constantly informed in respect to all questions of foreign policy affecting the British government. The Anglo-Japanese alliance was discussed on June 28 and June 30. The question of renewal having been raised it was urged by Mr. Balfour that the alliance should be brought into harmony with the requirements of the League of Nations. But the main point in the proceedings was the demand of the dominion Prime Ministers that they should take part in determining the foreign policies of the empire. On July 5 a committee was appointed which should consult with the home governments in respect to imperial improvements, including defense, transport, communications, etc. On August 4 it was decided that the Prime Ministers should have a share in shaping the foreign policies of the empire, and it was suggested that the coöperation of the United States should be secured.

RECONSTRUCTION. The government continued to withdraw from its control of industries. The turning over of the coal industries to private management went into effect on April 1, and the return of the railways to their owners was provided for on August 15. In the act directed to that end provision was made for the settlement of liabilities arising from the period of war control, and the adjustment of relations between the railway companies and the workmen, and the railway companies and the public. The act rested on the principle that the interest of the traveling public could not be subserved on the old basis of competition, and that government regulations were necessary to the efficient working of the railway systems. The interests of the public were protected by the establishment of a tribunal to fix rates. In respect to labor disputes, it provided that they should be referred to and settled by a central wages board with appeal to a national wages board. The term "decontrol" though applied to this arrangement was misleading since the new system provided for a more far-reaching and detailed government regulation than had ever before been known in the history of the British railroads.

NEW TARIFF MEASURE. On August 19 the new tariff law for the defense of essential in-

dustries was voted after a vigorous debate. This measure provided for a tax of 33½ per cent *ad valorem* on the goods imported from any country whose currency is depreciated to a specified degree below the English level. The government showed a desire to put the measure through and tried to cut off debate on details. Before the voting of the law a memorandum had been addressed to the prime minister, signed by leading industrials, especially representatives of iron and steel industries, pointing out the bad condition of essential industries in Great Britain. The memorandum dwelt particularly on the competition of Germany, Belgium, and France, making a special point of Belgian competition. The law, however, did not make any express mention of the countries against which the new tax should be levied. In France, it was believed that French industries would not be affected. The principle of the law was that the initiative must come from the industries themselves, that is to say a complaint must be made by them before any action would be taken. This complaint must be submitted to the examination of a committee before which representatives of the industries must offer proof that the imports from the country indicated would tend to cause unemployment in their own industries. No complaint from manufacturers of foodstuffs would be admitted. The committee charged with the examination of complaints was to be composed of three persons whose interest would not be affected by the decision. After a favorable report from the committee of examination, the Board of Trade might specifically order the application of the 33½ per cent duty to the imports in question. This ordinance would not go into effect until after twenty-one days during which the House of Commons was to have it in its power to raise objections to it.

RETRENCHMENT. As noted above, a strict policy of economic retrenchment was one of the main features of the programme recommended in the speech from the throne. There was much discontent with the government's slowness in adopting effective measures. The government, however, recognized the necessity of severe retrenchment by appointing a committee of business men to investigate the public expenditures and to make suggestions for economy. The chairmanship of the committee was bestowed upon Sir Eric Geddes. The recommendations of the committee had not been made public at the close of the year. A great improvement was indicated by the decision for a naval holiday reached at the Disarmament Conference at Washington (see WAR OF THE NATIONS). The government had previously decided, in accordance with the advice from the Admiralty, to begin work on four new super-Hoods and the contracts had been placed when the Disarmament Conference met at Washington. The orders were canceled and the building of the ships suspended. Recruiting for the Navy also was suspended.

OPPOSITION TO THE GOVERNMENT. The Labor opposition had collapsed at the beginning of the year, but a new revolt showed itself in the country and in Parliament also, under the leadership of Mr. Bottomley and Mr. Edmond Harmsworth, representatives of the "Anti-Waste" group. The programme of this group had won at the by-election in Dover, January 12, when its representative, Sir Thomas Polson, was elected. The Anti-

Waste candidates won in two elections also, in June. Moreover, there was opposition to the government from the two extremes in the Coalition, namely, the Unionists on the one hand and the Liberals on the other. On April 18 Lord Derby welcomed Lloyd George as a recruit to the Conservatives, but on June 20 Lord Salisbury made an attack upon the ministry and urged the Unionists to recover their liberty of action. The Unionists' discontent was subsequently shown by the withdrawal successively of three Unionist representatives, from the support of the government, and finally, in the autumn, the climax was reached by the so-called "Diehard" movement led by the Duke of Northumberland and Colonel John Gretton. Its main point of attack was the government policy of conciliation toward Sinn Fein. A resolution was moved by Colonel Gretton, October 31, criticising this policy. It was regarded by the government as a resolution of censure and its terms being extreme, the Independent Liberals and the Labor members joined against it. On the vote it was supported by only 43 members and the government had a majority of 439, which was the largest of the session. The Unionist element planned another attack on the ministerial programme at the National Conference of Unionists at Liverpool, November 17, but through the efforts of Mr. Austen Chamberlain and Sir Laming Worthington Evans an open assault on the government was prevented. On the other hand, the attempts of the Coalition to win over the Independent Liberals were unsuccessful. Viscount Grey attacked the Coalition Ministry in a speech at Berwick, October 7. The planks of the liberal programme were laid down at meetings of the National Liberal Federation at Newcastle in November by Mr. Asquith. They included the demand for a complete revision of the terms of the Treaty; the cancellation of the debts owed to Great Britain by her European allies; the removal of tariffs and a new programme of land and social reforms. At the conference of the Labor party on June 22 it was decided by a vote of 4,515,000 to 224,000 to reject the request of the Communist party of Great Britain for affiliation.

THE REPARATION QUESTION. The attitude of Great Britain toward the subject of German reparation and the various conferences during the year are discussed in detail in the article *WAR OF THE NATIONS*, but may be briefly summarized here for convenience. On January 9 the Allied Council at Paris fixed the German obligation at £11,300,000,000, payable in annuities during forty-two years, together with a charge of 12 per cent on the value of Germany's exports during that period. The Reparation Commission fixed the proportions of the respective Allies. Germany refused this demand and offered a total of £2,500,000,000 of which they maintained that £1,000,000,000 had already been paid in materials. Then came the ultimatum of March 3 in which Germany was informed that they must accept the Paris proposals within four days. Certain modifications of these proposals, however, were offered to the German delegates, March 7, but the latter rejected them and left London on the following day. This was at once followed by the occupation by the allied troops in the German cities of Ruhrort, Duisburg, and Düsseldorf. The bill was now drafted in Parliament providing for the collection through the allied custom houses of

50 per cent of the purchase price of goods from Germany. The system involved the payment by every British purchaser of German goods of one-half of the purchase price to the British exchequer, which would receipt for it and this receipt would be sent to the German seller by the purchaser instead of cash. Thus the German seller would have to recover, if possible, the value of this receipt from his own government. The bill was introduced, March 14, passed its third reading in the House, March 18, by a vote of 132 to 15 and became a law, March 24. Similar laws were passed by France, Belgium, Japan, and other allied states. Later, however, the acceptance of Germany was signified and on May 11 the Prime Minister announced that the German government had agreed to carry out its obligations without reserve or conditions, as had been demanded by the Reparation Commission. Germany made her first payment at the end of August. To do this the government had been obliged to secure temporary advances through foreign banks and it resorted largely to the printing of paper marks. The latter course was followed at once by a collapse of the value of the mark (see *GERMANY, Paragraphs on Finance*). The question of Germany's ability to meet the schedule of payments now became serious and was extensively discussed. In October came the agreement at Wiesbaden wherein the French and German ministers of Reconstruction, revising the earlier London agreement, admitted the priority claim of France on materials for the repair of her devastated regions. The British criticism of this was to the effect that it increased the difficulty of providing reparation for Great Britain and the other creditors of Germany. The situation was further complicated by the fall of the German government. The default of Germany in respect to the second installment seeming probable, the leading German financier, Herr Stinnes, and the well-known industrial organizer, Dr. Rathenau, went to London where they were in conference with members of the British government in the closing weeks of the year, but no solution of the difficulty had been reached at the year's close.

TRADE WITH RUSSIA. As noted in the last *YEAR BOOK*, an agreement was made with the representatives of the Soviet government for the opening of trade between the two countries at the close of 1920 and this move was regarded with high hopes. According to reports of 1921 the hopes were not fulfilled. Early in October the Chancellor of the Exchequer declared that the British plans for trade with Russia had been defeated. He explained this as in part due to the Russian famine and in part to the fact that the Russian government had shown more inclination to invest its gold in propaganda than in the purchase of goods. It was believed, however, that the agreement in respect to trade would eventually turn out well, though at present, according to the Chancellor, nothing could be gained by sending goods to Russia for they had nothing to give in exchange.

WAR PENSIONS. The cost of relief of ex-service men was exceedingly heavy. It was estimated in September that the government was paying out £111,000,000 in pensions. The casualties of the war according to figures published at that time numbered 2,250,000; and the number of men, women, and children who were receiving

pensions and allowances each week was placed at 3,335,000.

OTHER EVENTS. Mr. J. W. Lowther, Speaker of the House, who had served for fifteen years and had on several occasions prolonged his term at the special request of the government, resigned April 25 and was raised to the peerage under the title of Lord Ullswater, and was succeeded by Mr. J. H. Whitley, former Chairman of Committees, who was elected, April 27. The first woman of English birth, and the second woman to become a member of Parliament was elected to the House, September 2. The new member was Mrs. Thomas Wintringham who succeeded her husband, the latter having died suddenly in the house, August 8. She stood as an Independent Liberal and defeated both her Unionist and Labor competitors. See SHIPPING.

GREECE. A constitutional monarchy in the southeast of Europe, between the Ægean and Ionian seas, consisting of the lower end of the Balkan Peninsula, the island of Crete, the territory acquired after the Balkan wars, and indeterminate regions in Asia Minor where a state of war prevailed in 1921. The mainland is nearly cut in two by the Gulfs of Patras and Lepanto on the west and the Gulf of Ægina on the east. Besides Crete, the islands of Greece include the archipelago in the Ægean Sea and the islands of the Ionian sea. Capital, Athens.

AREA AND POPULATION. As a result of the Balkan wars the area was increased from 25,014 square miles to about 41,933 square miles; and the population from 2,643,109 on the basis of enumeration in 1917 to 4,821,300 as estimated

being the headquarters of the Allies and the centre of the supporters of Venizelos during the war; Candia, 25,185; Canea, 24,399; Cavalla, 23,378. An estimate in 1919 placed the population of Athens and the Port of Piræus at over 300,000. The majority of the inhabitants are Greek Orthodox. Education is compulsory between the ages of six and twelve, but the law is not thoroughly enforced, and illiteracy prevails. No later statistics for education were available than those given in the preceding YEAR BOOK which shows the number of primary schools, 6799 with 476,695 pupils.

PRODUCTION AND INDUSTRY. The chief interest is agriculture, but only about one-fifth of the land is cultivable. The chief cereals are: Wheat, barley, corn, oats, rye, mezzlin; but the most important crop is that of currants, of which industry Patras is the chief centre. Farm products in 1920 were as follows: Wheat, 721,173,291 lbs.; corn, 505,756,344; barley, 344,641,699; oats, 124,432,916; rye, 73,164,937. The wine production was 49,454,367 gallons or about 10 per cent less than in the previous year and olive oil was reported at 50,265,400 gallons. Other important products are: Tobacco, wine, figs, oranges, mandarines, and lemons. There is a great variety of minerals, including: Iron, lead, zinc, copper, silver, tin, nickel, manganese, aluminum, antimony, magnesite ore, cobalt, lignite, and various mineral earths.

COMMERCE. The following table taken from the *Statesman's Year Book* of 1921 shows the distribution of the foreign trade by principal countries in 1918 and 1919:

Countries	Imports from		Exports to	
	1918 Drachmas	1919 Drachmas	1918 Drachmas	1919 Drachmas
Great Britain.....	84,255,201	388,725,000	82,940,340	175,438,000
Egypt.....	61,712,763	83,820,000	34,130,170	48,205,000
United States.....	86,029,558	445,428,000	90,874,155	80,093,000
Austria-Hungary.....	351,192	2,545,000	.....	1,193,000
Belgium.....	18,761	2,231,000	.....	8,495,000
Bulgaria.....	356,871	3,313,000	.....	7,393,000
France.....	82,697,319	133,586,000	62,521,982	44,950,000
Germany.....	49,115	387,000	.....	4,327,000
Switzerland.....	4,169,374	15,762,000	30,082	6,444,000
Italy.....	79,767,838	142,021,000	17,596,200	37,982,000
Netherlands.....	564,413	20,347,000	.....	97,178,000
Roumania.....	24,821	2,142,000	.....	44,452,000
Russia.....	107,689	4,380,000	.....	13,543,000
Serbia.....	1,792,075	19,536,000	2,904,548	51,564,000
Turkey.....	261,389	73,306,000	98,776	80,449,000
All other countries.....	331,748,720	165,237,000	5,768,998	14,671,000
Total.....	733,907,099	1,608,323,000	296,860,251	726,536,000

in 1914. After the late war Greece was permitted by the Allies to occupy the western part of Thrace which had been held by Bulgaria, and the greater part of the Turkish province of Aidin in Asia Minor whose chief town is Smyrna. These concessions were included in the Treaty of Sèvres with Turkey in 1920, but that treaty was not executed, and the attempt of Greece to enforce her claims in Asia Minor brought her into war with Turkey, and the result was uncertain at the close of the year. See paragraphs below on *History*, and the articles, *TURKEY* and *WAR OF THE NATIONS*. See also preceding YEAR BOOKS.

The capital, Athens, had a population in 1907 of 167,497. The largest cities of the new territories and those occupied in 1921 with their populations according to the provisional census of 1915 were as follows: Saloniki, 157,889, temporarily increased to about 250,000 in 1919 owing to its

In 1919 as appears from the above table, the United States held the first place among the countries from which imports were received, and England held the second. Exports from Greece to the United States during the first nine months of 1921 were valued at \$17,733,747 as compared with \$16,866,732 during the corresponding period of 1920; imports to Greece from the United States during the first nine months of 1921 were \$27,100,552 as compared with \$30,293,757 during the corresponding period of 1920.

FINANCE. The budget for the fiscal year 1920-21 was: Revenue, 1,169,511,196 drachmas; expenditure, 2,156,253,578 drachmas. The deficit was due to the cost of the war in Asia Minor. The external debt, Jan. 1, 1921, amounted to 3,282,986,597 drachmas. The agreements of Feb. 10, 1918, with the Allies promised advances of £14,700,000 from Great Britain; 410,000,000

francs from France; and \$48,239,267 from the United States. The control of the fund was entrusted to an inter-allied finance commission and an inter-allied military commission with headquarters at Athens. At the beginning of 1921 the amounts actually paid in by the Allies in accordance with this programme were: £7,000,000 by Great Britain; \$15,000,000 by the United States; and 30,000,000 francs by France. Figures for November, 1921, estimated the total public debt at about 5,400,000,000 drachmas, or about 770 drachmas per capita. Another estimate was about 7,000,000,000 drachmas, or about 1000 drachmas per capita. The external debt was still in excess of 3,000,000,000 drachmas. The last internal loans of the government, were those of July, 1921, one of which was for 125,000,000 drachmas, made from the National Bank of Greece; and the other for 40,000,000 francs made with a group of Greek banks. There was an increasing deficit in government expenditures over revenues that was continually adding to the public burden.

COMMUNICATIONS. The railway mileage open for traffic in 1921 was about 1507, including the following principal lines: The Hellenic; the Piræus-Athens-Peloponnesus; the Thessalian; the Attica; the Northwestern; and the lines centred at Saloniki. Down to the war with Turkey in 1912-13 there was no railway communication with the rest of Europe. But the Monastir line between Gida and a point on the Thessalian frontier was completed in 1916, providing connection with the European systems, and since then lines in western and eastern Thrace have been included. The railways are owned and controlled by the state. On Jan. 1, 1920, the Greek merchant marine consisted of 1048 sailing vessels of 108,217 tons and 228 steamships of 190,886 tons.

GOVERNMENT. The executive power is in the hands of the king who acts through a responsible ministry; and the legislative power is in the Boulé or chamber of deputies which consists of 316 members. The chamber elected, November, 1920, was distributed as follows among the political groups: Rhallis group, 25; Gounaris, 75; independents, 69; Stratos group, 62; Dragoumists, 30; Liberals (followers of Venizelos), 110. The ministry appointed, April 1, 1921, was as follows: Premier, D. Gounaris; Foreign Affairs, J. Baltazzi; Justice and War and Marine (ad interim), M. Theotoky; the Interior, M. Stais; Communications, P. Tsaldares; Education, Theodore Zaimis; Finance and Supplies, M. Protopapadakis; National Economy, Peter Mavromichalis; Public Assistance, M. Bartialis; Agriculture, M. Tertipes.

HISTORY

FOREIGN RELATIONS. The main event of the year was the war in Asia Minor, which is discussed in the article **TURKEY**. The central point in foreign policy was the persistence by Greece in her expansion in Asia Minor and in retaining such advantages as had been gained by the treaty of Sèvres. As recounted in preceding **YEAR BOOK** the return of Constantine to the throne gave great offense to France, while Great Britain acquiesced in it. French policy supported by Italy henceforth favored the Turks, and both France and Italy demanded a revision of the treaty of Sèvres. France in March entered into

a secret treaty with the Turkish Nationalists and Italy also made a secret arrangement with them. The Allies proposed a revision of the treaty of Sèvres but Greece rejected this and began a new campaign in Asia Minor for the purpose of forcing the Turks to accept the original terms of the treaty. In the war in Asia Minor, the Greeks were at first unsuccessful and the results were indecisive, but the results of later campaigns were in their favor. Meanwhile throughout the struggle the French and Italians were apparently giving aid to the Turks. Early in the year the Inter-Allied High Commission declared Constantinople and the Straits neutral. This legally closed them to the Greeks, but the ruling was reversed, June 15. Greek diplomacy appeared to have for its aim during the greater part of the year the separation of Great Britain from France and Italy in the hope of securing as much as possible of the benefits allotted to Greece in the treaty of Sèvres. On October 30 the French mission under Franklin-Bouillon negotiated a treaty at Angora which is described under **WAR OF THE NATIONS**, and at the same time Italy made an attempt to negotiate a similar one. The Greek government objected to the French treaty and the British foreign minister took the same position. See **WAR OF THE NATIONS**.

KING CONSTANTINE. The king as noted in the preceding **YEAR BOOK** was restored to the throne as the result of the November elections of 1920 and the plebiscite which was taken afterwards. On January 5 the king read his message to the parliament. On February 2 he appointed the marriage of Prince George of Greece to Princess Elizabeth of Roumania for February 27 at Bucharest, and of Princess Helen of Greece to Prince Carol of Roumania for March 9 at Athens.

NEW MINISTRY. The ministry of Rhallis fell from power in February over the questions of the responsibility of the ministry to parliament and the representation of Greece at the London Conference; and a new ministry was constituted as follows: Prime Minister, Kalogeropoulos; Agriculture, Balajzis; Justice, Theotokis; Finance, Protopapadakis; Marine, John Rhallis; Education, Theodore Zaimis; Interior and Communications, Tsaldaris. This ministry was short-lived, however, owing to party disputes in the Chamber and resigned April 8 to give place to a new ministry under Gounaris.

CRITICISM OF THE MINISTRY. At the close of the year the Gounaris ministry was attacked by its opponents. By many it was believed to be on the point of resignation. The following summary based on French reports unfriendly to the present Greek government represents the point of view of the opponents of the ministry: The policy pursued during the entire year had been dictated, according to these critics, by M. Gounaris even when he was not actually in power, for during both the ministries of Rhallis and Kalogeropoulos it was believed that he was the controlling influence. It was pointed out that none of the aims of the government had been attained and none of its promises fulfilled. The parties that had come into power after the overthrow of Venizelos had promised immediate demobilization; reduction in the cost of living; and constitutional reform. Instead of demobilization, a campaign against Turkey, involving the loss of thousands of lives, had been carried out. Instead of a reduction in

the cost of living, there had been an enormous increase in prices, and a corresponding fall in the value of the drachma. Finally constitutional reform was no nearer than it had been when the promise was made. The Greek legislative body had been turned into a Constituent Assembly which was the chief power in the state and could not be dissolved until its work was accomplished. According to the opponents of the government

purposely dragged its work along in order to continue in existence, but the nature of the questions that came up before it would at best require a long session owing to the diversity of opinion in respect to them. The government had not even kept its promise in the matter of indemnifying its partisans who had suffered under the Venizelist régime, for the condition of the treasury did not admit of the heavy expenditure which this would involve, the amount being placed at one million drachmas. The government admitted the claims of these partisans, however, and according to the accounts of its opponents, showed very little discrimination in doing so. French writers charged it with undertaking to indemnify persons engaged in spy service on behalf of Germany and persons operating against the Allied army of Saloniki. According to the French, men who ought to be imprisoned or deported were recognized by the government as victims of the Venizelist régime and were entitled to indemnity for their punishment by the military authorities of the Allies at Saloniki. The public had been deceived by M. Gounaris who had assured it that he was in the confidence of the Allies, and that if he paid a visit to their capitals, he would obtain from all that could be demanded. He made his diplomatic journey in the autumn but returned with empty hands, and Greece was left without friends in Europe. Toward the end of the year it was understood that the government was planning a complete reversal of its policy in Asia Minor. According to the newspapers the Gounaris Ministry, realizing that the Greek forces had met with a complete check, decided to withdraw the army of Anatolia.

OTHER EVENTS. On February 1 the separation between the Patriarchate of Constantinople and Synod of Athens was completed. A new government was formed under M. Gounaris, April 8, succeeding M. Kalegeropoulos. On June 17 the British foreign office and the French prime minister consulted in regard to stopping the war between Greece and Turkey, and on June 19 they sent to Greece an offer of intervention which, however, was rejected. On September 12 the Greek government informed the British authorities at Constantinople of a Moslem-Bolshevik conspiracy to assassinate the leaders of the Inter-Allied commission.

GREENE, FRANCIS VINTON. Army officer, died, May 15. He was born at Providence, R. I., June 27, 1850, and graduated at the United States Military Academy in 1870. He entered the engineering corps, June 10, 1872, and attained the rank of captain, Feb. 20, 1883. In 1872-76, he was engaged in the survey of the northern boundary as assistant astronomer and surveyor. He served in the United States legation at St. Petersburg 1877-79 and was with the Russian army 1877-78. During the Russo-Turkish war he was present at several important battles and was decorated by the emperor of Russia. He was

afterwards engaged in engineering and public works in the United States. In 1898 he was made major-general of volunteers. He resigned in 1899 and was appointed chairman of the committee on canals in New York State. From 1904 to 1915 he was the president of the Niagara-Lockport and Ontario Power company. He wrote historical works on the Revolution and Civil War and a volume on the first year of the late war which was published in 1918. His other writings include accounts of his experiences in the Russian army; a two-volume history of the Russian army and its campaigns in Turkey; *The Military Policy of the United States* (1911); *The Present Military Situation in the United States* (1915).

GREENE, HENRY ALEXANDER. Army officer, died August 19. He was born at Matteawan, N. Y., August 5, 1856, graduated at the United States Military Academy in 1879 and had risen to the rank of major by May 30, 1900. He served in Texas, Montana, Cuba, and the Philippines and held important commands after 1900 including that of the central department at Chicago, 1914, the army service schools at Fort Leavenworth, Kansas, 1914-16, on the Mexican border 1916, the 91st Infantry Division and Camp Lewis, Wash., 1917. In 1917 and 1918 he was engaged on observation duty in France and Belgium with the British, French, and American Expeditionary Forces. He was then in command of the Philippine department until his retirement from active service, Nov. 29, 1918.

GREENLAND. Next to the island continent of Australia, the largest island in the world. Area, variously estimated at from 826,000 square miles to 849,429 square miles. The greater part is uninhabited, and the settled portion which belongs to Denmark has only an area of from 34,015 square miles to 46,740 square miles; population in 1911, 13,449. The largest settlement at that time was the town of Sydproven with a population of 789; and the smallest, Skansen with 46. The exports from Greenland to Denmark in 1919 were 2,358,000 kronen; and the imports from Denmark to Greenland, 2,405,000 kronen. Trade is a monopoly of the Danish government, and is largely in seals and sealskins, fish, oil, and fox skins. The head of the administration is a director who resides at Copenhagen.

HISTORY. In 1921 there was a conflict between the Danish and Norwegian governments in regard to the limits of their respective jurisdictions.

The Danish government claimed sovereignty over all Greenland, and the Norwegian government opposed this, claiming that the extension of Danish control endangered the interests of Norway in that it might exclude the Norwegian whalers from all the Greenland coast. In 1920, 52 whalers were engaged in these waters and the catch was figured at about 60,000 crowns per whaler. The policy of Denmark, according to the press version, was that of state monopoly in the exploitation of the natural resources of Greenland. This caused anxiety to the Norwegians. On July 2 the Danish government informed Norway that by virtue of the ordinance of 1776, Greenland formed a part of the Danish colonial empire. The Norwegian government replied, November 5, to the effect that it had not recognized and could not recognize the extension of Danish sovereignty over Greenland, which would involve a corresponding extension of Denmark's

economic monopoly, to the injury of Norwegian enterprises that had hitherto operated without question in the disputed regions of Greenland. The subject had previously come up in 1919 at the time of the sale of the Antilles when the United States as well as Sweden and England had formally recognised the sovereignty of Denmark. The general opinion was that while Norway could not successfully oppose Danish occupation of Greenland it might perhaps succeed in suppressing the Danish monopoly of exploitation since that might close the country completely to all foreign enterprises. On the other hand, Denmark contended that her monopoly aimed only at supplying a moral and economic protection to the Lapps who lived under disadvantageous conditions, and that such protection was only just as against foreigners who were stronger and better equipped. At the close of the year there were indications that the subject would be referred in the future to the League of Nations. For the first time Greenland has been visited by the King of Denmark, in the summer of 1921. This journey marks an increasing activity in this arctic colony, whose interests have been so wisely safeguarded by Denmark in the past. In 1921 the Danish National Museum sent Dr. Norlund to Greenland, to continue investigations of the vestiges of the Norse settlements made prior to the discovery of America by Columbus. Norlund passed the summer in South Greenland, where his discoveries proved to be of historical importance. Near Ikigait he located a number of ancient graves, from which he obtained clothing and other articles of interest; these point to the occupancy of this section of Greenland by Norsemen from the years 885 to 1400.

GRENADA. One of the Windward Islands of the West Indies, belonging to Great Britain. Area, 133 square miles; population estimated, Dec. 31, 1919, at 74,490. The colony includes one-half of the Grenadine Islands, the other half being under the administration of St. Vincent. The capital and chief town is St. George's, with a population of 4916, mostly negroes. In 1919 there were 59 government or government-aided elementary schools with an enrollment of 9689 pupils. The chief products are spices and cocoa which are also the chief exports, but latterly sugar manufacture has developed. The exports in 1919 were £637,249; imports, £438,110. The total shipping in 1919 was 737,560 tons of which nearly all was British. Governor and commander-in-chief of the Windward Islands, including Grenada, at the beginning of 1921, Sir G. B. Haddon-Smith (government headquarters at St. George's).

GRENADINES. See GRENADA and ST. VINCENT.

GRESHAM, HERBERT. See NECROLOGY.

GREUNEBAUM, B. F. S. (COUNT GREGORY). See NECROLOGY.

GROSSCUP, PETER STENGER. Judge, died at sea, October 1. He was born at Ashland, Ohio, Feb. 15, 1852, and graduated at the Boston Law School in 1874. He practiced first at Ashland, Ohio and then at Chicago, 1882-92. In 1892 he was made United States district judge and was judge of the Circuit Court of Appeals 1889-1905. He was then made presiding judge and held that office till Oct. 23, 1911, when he resigned. Among his noteworthy official acts was the issue of an in-

junction along with Judge William A. Woods against Eugene V. Debs and other officers of the American Railway Union. He was also concerned in many other important cases including Standard Oil litigation. A local decision that drew much attention was that in respect to the closing of the World's Columbian Exposition on Sundays. Herein, his opinion dissented from the two Circuit judges but was sustained by Circuit Court of Appeals.

GROVER, G. See NECROLOGY.

GRUENBERG, LOUIS T. See MUSIC, *Orchestras, Novellies.*

GUADELOUPE. An island of the Lesser Antilles in the West Indies, belonging to France; consisting of two islands, namely, Guadeloupe proper or Basse-Terre on the west and Grande-Terre on the east, separated from each other by a narrow channel. The combined area is 722 square miles. There are also five dependencies consisting of smaller islands, whose total area is 688 square miles. Population, estimated unofficially in 1919, 213,229. Capital, Basse-Terre (8184). The chief city is Pointe-à-Pitre with a population of 22,664, which has an excellent harbor. The chief products are: Sugar, coffee, cacao, vanilla, and rum, but there is a variety of native vegetables and fruits for local consumption. Imports in 1919, 63,844,241 francs; exports, 103,628,520 francs. There is direct communication with France by two steam navigation companies and there is a wireless station at Destrellan. At the head of the government is a governor and an elected council, and the colony is represented in the French parliament by one senator and two deputies.

GUAM. An island belonging to the United States situated in the Pacific ocean between 13° 13' and 13° 39' N. latitude; 140° 77' and 144° 58' E. longitude. Area estimated at 225 square miles; population at the census of 1920, 13,275. The pupils enrolled in the schools in 1921 numbered 2369 of whom 1865 were in daily attendance. The imports during the fiscal year ending June 30, 1921, were \$427,354; and the exports, \$41,518. The leading imports were: Foodstuffs, cotton tissues, automobiles and parts of automobiles, refined sugar, cigars, and tobacco, petroleum; and iron, steel, copper, and other metals. Revenue for the fiscal year ending June 30, 1921, \$149,490.95; expenditures, \$149,940. The island of Guam is in its entirety a naval station, and the governor is head of the naval government and commandant of the naval station. Governor in 1921, Captain Ivan C. Wettengel, appointed July 7, 1920.

GUATEMALA. A republic of Central America extending from the Caribbean sea to the Pacific ocean. Capital, Guatemala City. Area, estimated at from 43,641 square miles to 48,290 square miles, varying on account of boundary disputes; population estimated, Dec. 31, 1914, at 2,003,579; unofficially, Dec. 31, 1917, 2,123,091 of whom about 61.5 per cent were Indians, the remainder being mestizos. Guatemala City had a population variously estimated at from 90,000 to 100,000 of whom five-sixths were of European origin. Earthquakes in 1917 and 1918 destroyed the city almost completely, but rapid progress had been made in rebuilding by 1921. Other towns are: Coban (30,770); Quetzaltenango (28,940); Totonicapan (28,310).

EDUCATION. Primary education is free and compulsory between the ages of six and fourteen.

In 1920 there were 55,100 pupils in attendance at the elementary schools. In 1917 the government schools numbered 1942 with an attendance of 54,745. Institutions for higher education included the University of Guatemala, opened Sept. 15, 1913, the National Central Institute, and schools of art, handicraft, and music.

PRODUCTION. Tropical and subtropical productions abound, the chief being coffee, sugar, and bananas. Coffee is raised for the most part on the mountain slopes at an altitude of 1500 to 5000 feet above sea level. In 1919 the coffee crop was estimated at 1,100,420 quintals (a quintal equals 101.4 lbs.). Sugar yielded in 1913, 42,000,000 pounds. The next important product is bananas of which on the average about 10,000,000 bunches are raised in a year. The forests are rich in mahogany and dyewoods. Gold, silver, copper, iron, and lead are worked, but have not been developed on account of the lack of means of transport. The mining of ferro-chromium has been developed latterly, especially in the department of Jalapa.

COMMERCE. In 1919 according to a British authority the imports were £2,246,164; the exports, £4,483,827. The trade of that year was distributed among the following countries in the order of their importance as follows: United States, United Kingdom, and Belize, France, Mexico, and Central America. By far the largest share is that of the United States in whose trade with Guatemala the following products have constituted the chief items: Cotton, coffee, sugar, foodstuffs, iron, steel, linen, hemp, jute, bananas, timber, paper, and leather.

FINANCE. The revenue in 1919-20 was 127,249,490 dollars; the expenditure, 101,028,476 dollars. The estimated expenditure for 1920-21 was 135,604,267 dollars.

COMMUNICATIONS. The Guatemala railway, 195 miles in length; the Guatemala Central railway, 139 miles; and shorter lines were incorporated in the International railway of Central America, in 1912. The company receives subsidies from the governments of Guatemala and Salvador. The main lines are from Guatemala City to Puerto Barrios, and from the former to San José. In 1919, vessels entered numbered 601 of 696,885 tons of which 175 of 422,929 tons were American; vessels cleared, 576 of 541,580 tons.

GOVERNMENT. The constitution dates from December, 1879, but was modified in 1885, 1887, 1889, and 1903. The executive power is vested in a president, elected for six years, and a council of state of thirteen members, partly appointed by the president and partly elected by the national assembly; legislative power is in a national assembly which consists of representatives elected for four years by universal suffrage. The president during the first part of 1921 was Don Carlos Herrera, but he was overthrown in 1921 (see following paragraph on *History*).

HISTORY. A revolt of the Indians took place late in the summer in the Department of Zacapa on the border of Honduras under two chieftains who joined forces and attacked a village. They killed the commandante and held up a train but troops were sent from the capital and put down the uprising. On December 6 a revolutionary movement overthrew the President, Carlos Herrera, who was obliged to surrender his power to

a committee of three generals pending the elections for a new congress and a new president. Ex-President Herrera, the vice-president and all the members of the cabinet were thrown into prison. This change threatened the status of Guatemala in the newly formed Central American Union, according to some accounts, since the revolutionary party was not in favor of this policy. President Herrera had been placed in power as a result of the revolution of 1920 which overthrew President Estrada Cabrera. Cabrera was confined in prison in 1920 and 1921 in spite of the efforts of the United States government on his behalf. On December 8 General Orellana, chief of staff of the army, was elected provisional president in place of Carlos Herrera, who had been deposed and the National Assembly was convened.

GUNSAULUS, FRANK WAKELEY. Clergyman and author, died March 17. He was born at Chesterville, Ohio, Jan. 1, 1856, graduated at Ohio Wesleyan University in 1875 and was ordained to the Methodist ministry in 1875. He entered the Congregationalist ministry in 1879. He held pastorates in Ohio, Massachusetts, and Baltimore and after 1887 at Chicago. After 1893 he was president of the Armour Institute of Technology and lecturer at the University of Chicago. He was widely known as a preacher, lecturer, and writer. Among his works were the following: *Metamorphosis of a Creed* (1878); *November at Eastwood* (1879); *Phidias and Other Poems* (1887); *Loose Leaves of Song* (1888); *Songs of Night and Day* (1889); *Monk and Knight* (1889); *Transfiguration of Christ* (1892); *Life of William Ewart Gladstone* (1898); *The Man of Galilee* (1899); *Paths to Power* (1905); *Paths to the City of God* (1906); *Higher Ministries of Recent English Poetry* (1907); *The Minister and the Spiritual Life* (1911).

GUNTHER, DUKE ERNST. See **NECROLOGY**.

GYMNASTICS. The National Amateur Athletic Union championships were held at Greensburg, Pa., February 26. The individual winners in the various events were: Horizontal bar, Curtis Rottman, New York Turn Verein; parallel bars, the same athlete; side horse, the same athlete; flying rings, John Kristefuk, Sokol Gymnasium, Chicago; rope climb, George Taylor, Greensburg Y. M. C. A.; Indian club swinging, Lester McCloud, New York A. C.; tumbling, Arthur W. Nugent, Newark; all-around, Rottman, New York T. V. The team honors went to the New York Turn Verein with a total of 18 points.

The United States Naval Academy won the intercollegiate title for the second year in succession, scoring 23 points; the University of Pennsylvania was second with 10 and New York University third with 9. The individual winners were: horizontal bar, Pearson, Navy; side horse, Cramer, New York University; parallel bars, Sherman, Navy; flying rings, Hales, Navy; tumbling, Woodward, Pennsylvania; swinging clubs, Gilmore, University of Pennsylvania; all-around, Pearson, Navy.

GYPSUM. In 1920, for the first time, the total quantity of gypsum produced in the United States in a single year exceeded 3,000,000 tons, according to the United States Geological Survey. After 1909, when the annual output first passed the 2,000,000-ton mark, it fluctuated, not falling below 2,000,000 tons nor going above 2,760,000 tons. The value of the product marketed also was much greater than in any previous year.

H

HABBERTON, JOHN. Author, died February 25. His reputation was acquired by an exceedingly popular story entitled *Helen's Babies*. He was born at Brooklyn, N. Y., in 1842 and educated in southern Illinois. He learned the printing trade but later was engaged in editorial work on New York periodicals. He served during the Civil War. *Helen's Babies* was published in 1876. It was a slight but amusing account of the sayings and adventures of two children and it had an extraordinary circulation being published in Europe as well as in this country. Other works of his included, *Other People's Children* (1877); *The Chaulauquans* (1891); *All He Knew* (republished in 1900); *Budge and Toddy* (1909).

HAGAR, GEORGE J. Editor, died at Newark, N. J., July 25. He was born at Newark, Sept. 12, 1847, and educated at the public schools. From 1867 to 1882 he was news editor of Frank Leslie's *Illustrated Newspaper*. From that time on he was an editor or contributor on the staffs of many encyclopedias and other reference books including the *Appleton's*, the *Columbian*, the *Johnson's*, etc., various important dictionaries including the *Standard*. In later years he was an editor of a documentary edition of President Wilson's *History of the American People* in 10 volumes and revised Appleton's *New Practical Encyclopedia* for World War events.

HAGERUP, GEORGE F. See NECROLOGY.

HAIG, AXEL HERMAN. Painter, died in 1921. He was born on an island in the Baltic sea in 1835; educated in Sweden, but went to Scotland and later to London where he worked in architecture. He made designs for churches and mural decorations in Sweden, but afterwards devoted himself chiefly to etching. He received many medals and other distinctions and published over 400 etchings, many of which are very well known.

HAINES, JOHN PETER. Philanthropist, died at Tom's River, N. J., July 26. He was at one time president of the Society for the Prevention of Cruelty to Animals. He was born in New York City, Dec. 17, 1851; educated by private tutors and pursued special courses at Columbia University. Early in his career he identified himself with the work of various humane institutions being especially active in the one above mentioned. He was the editor of *Our Animal Friends*, the official organ of the American S. P. C. A., and president of that society, 1889-1906. During his administration the society's activities were largely extended and many new laws were enacted as a result of its influence and many abuses checked. He was also a member of the American Geographical Society and the American Museum of Natural History and many other scientific and social institutions. He invented and patented the Haines electric log for indicating and registering speed of vessels.

HAITI. A republic of the West Indies occupying the western part of the Island of Haiti or Santo Domingo, the other half constituting the Dominican Republic. Capital, Port au Prince.

Area, estimated at 11,072 square miles; according to other authorities, 10,204; population based on estimates of 1909, 2,029,700. The majority of the people are negroes, speaking a dialect of French. The largest city is Port au Prince with an estimated population in 1919 of 101,272, but higher estimates are given, up to 120,000. Other cities: Cap Haïtien with an estimated population in 1919 of 18,952; Gonaïves, variously estimated at from 8000 to 30,000; Cayes, from 12,000 to 15,000; Port du Paix, from 5000 to 10,000. Education was made compulsory in 1910. In 1918 primary schools numbered 854 with 61,956 pupils. The following details were supplied by the department of public instruction in 1921: During the 1920-21 school year 15 private rural primary schools had 530 pupils and 38 private city primary schools 2951; 563 national rural primary schools, 18,187 pupils; 105 religious schools, 5857 pupils; 118 girls' primary schools, 10,481 pupils; 100 boys' schools, 8331 pupils; and 10 half-time schools, 963 pupils. In addition, there were in the 11 national primary schools in charge of friars 3260 pupils divided among 66 classes, and in 32 in charge of nuns there are 4782 pupils. There are also 29 school-teachers who are laymen and are visited by the friars as supervisors. School gardens have been instituted in Cap Haïtien, Jacmel, and Petion Ville to teach the rudiments of agriculture to the school child and interest him in profitable cultivation of the soil. In the 6 national lycées there were 650 students, and in 10 private secondary schools 2792 pupils.

PRODUCTION AND COMMERCE. Agriculture is the chief occupation and coffee is the chief product, but cocoa, cotton, and tobacco are extensively grown, and cotton has been exported in considerable quantities. Sugar, rum, and other spirits are also produced. Logwood and other valuable woods are found in the forests, and exported. The exports in 1918-19 amounted to 21,460,044 dollars; and the imports, 17,117,608 dollars. The chief exports are: Coffee, logwood and other woods, cocoa, cotton, honey, hides; and the chief imports: Cotton, sacks, iron work, machinery, flour, lard, kerosene.

FINANCE. The receipts and expenditures for 1919-20 were as follows:

Balance fiscal year 1918-19	\$ 668,626.32
Receipts	6,802,810.56
Total	7,471,436.88
Expenditures	6,348,601.48
(Including \$2,200,000 sent to the financial councilor to be converted into francs for payment of amortization, interest, and stipulated commission.)	
Balance fiscal year 1919-20	\$1,122,835.40

GOVERNMENT. The executive power is vested in a president, elected for four years by the two chambers in joint session; and the legislative power, in a chamber of deputies and a senate.

The president is assisted by a cabinet of five members. President in 1921, Sudre Dartiguenave.

HISTORY

AMERICAN OCCUPATION. The charges of atrocities against the American marines which were under discussion in the closing months of 1920 have been outlined in the preceding YEAR BOOK. On May 8 three Haitian delegates repeated the charges, and requested the American government to withdraw at once the American military force. There were further reports charging misgovernment on the part of the Americans. In the autumn a committee of the United States Senate was investigating the conditions in Haiti and taking testimony from American officials and others in respect to the alleged atrocities. Among the many witnesses was Rear-Admiral Caperton who had been in command of the marines at the beginning of the American occupation in 1915, which it will be remembered occurred on the occasion of the revolutionary movement. The Admiral testified that this revolt was in part financed by German residents at Port au Prince. He also testified that the election of the present president had been favored by the United States at the time on the ground that it would tend to insure Haiti's political integrity. Major-General George Barnett, former commander of the marines, testified on October 24 in regard to conditions in Haiti and the Dominican Republic. He said that the American marines had given Haiti the best government that it had ever had in a hundred years and that the American occupation would continue indefinitely. He gave details of his inquiry into the conduct of the marines in Haiti and he criticised former Secretary of the Navy, Mr. Daniels, for having refused to declare that the report of the Naval Committee of Investigation under Rear-Admiral Mayo did not impute any blame to him as commandant of the marines. On October 26 Major T. C. Turner of the Marine Corps, estimated that under the American occupation 2500 natives were killed in action, his report being based on an inquiry which he had made in the autumn of 1919. He declared that no evidence was found of the killing of natives held as prisoners. Of the 2500 killed during the entire period of the American occupation, 1132 were killed between Oct. 1, 1919, and Oct. 1, 1920. Major Turner declared that it was his opinion that there had been executions of the natives without trial. According to the testimony of Lieutenant-Colonel Hooker of the Marine Corps dating from January, 1919, the gendarmes had so maltreated the natives that many of them joined the bandits. It appeared from testimony heard in October, that natives had been killed in trying to escape and that natives were forcibly held in servitude for work on the roads. On the other hand Lieutenant-Colonel Alexander S. Williams, who was in command of the gendarmes from August, 1916, to July, 1919, offered an emphatic denial before the Senate Commission, against the charges against the gendarmes. He said that it was not true that the natives had been killed or treated cruelly by the gendarmes under the orders of the American Marine officers. He knew these officers and was certain that they were all animated by a high ideal of their duty and that they all showed

friendliness and sympathy for the natives. On November 7 Major-General Waller, retired, described the engagements that took place in 1915-16 between the American marines and the insurgents, saying that the latter had fired the first shots at some American patrols in violation of the understanding signed some days before with representatives of the insurgents. At that time he said that the American troops were under orders not to begin hostilities but to wait until they were attacked. He also testified that the American representatives had coöperated with the natives in the drafting of the new constitution.

On November 29 the Senate Commission arrived at Port au Prince for the purpose of making investigations on the spot. According to the chairman of the committee, Senator Medill McCormick of Illinois, the general objects of the visiting committee were to seek a political and economic basis for the future progress of Haiti, and to discover and maintain measures of preserving administrative and social order in the island. Diplomatic arrangements alone were not sufficient and it was necessary to find the means of uniting the two peoples with due regard to their safety, their rights, and their duties. The Commission returned to the United States at Christmas time, and, although its report was not published at the close of the year, it appeared from interviews with the chairman that in the opinion of the Commission it was necessary to send a high commissioner to Haiti to advance money to the government for the payment of its debts and to maintain the military occupation. Critics of the American administration at Haiti professed to see in this commission a definite step toward American acquisition of the island. They charged that intervention in Haiti, had resulted from the demand of certain financial interests in this country, that the occupation was merely a provisional measure, and that the next stage would be a definite assertion of American possession.

In general, the testimony before the Senate Commission was voluminous and contradictory. It included direct and emphatic assertions that better conditions prevailed under American occupation than ever before, and better even than in many parts of the United States. General Eli J. Cole, for example, testified to this effect and approved the course taken by the American authorities. He said martial law was necessary so long as American troops remained on the island and that native justice was venal and never accorded fair treatment to white men in the courts. On the other hand, testimony was presented to the effect that natives had been tortured and mutilated by American troops and subjected to other cruelties in order to extort from them information concerning the bandits. It was said that the natives were in the main tractable and that the higher classes were competent to manage an independent government. On the other hand, extreme cruelties were charged against the natives, cases of torture and mutilation of American soldiers were cited, and the United States government was criticised for not making the treaty effective and for not affording security for foreign capital.

HALE, ALBERT CABLE. Chemist, died at Brooklyn, N. Y., April 24. He was born at Adams, N. Y., Sept. 2, 1845, and graduated at the University of Rochester in 1869. He after-

wards studied in Germany. He was head teacher of the physical science department in the Boys' High School of Brooklyn 1883-1912, and was appointed president of the department of chemistry in the Brooklyn Institute of Arts and Sciences in 1890. He was elected president of the Physics Club of New York in 1900 and of the Chemistry Teachers' Club in 1902.

HALE, RICHARD. See MUSIC, Artists, Vocalists.

HALL, HERSCHEL S. See NECROLOGY.

HALL, LUTHER EGBERT. Former governor of Louisiana, died at New Orleans, La., November 6. He was born at Morehouse Parish, La., August 30, 1869; graduated at Washington and Lee University in 1889 and after studying law, began practicing in Louisiana in 1892. From 1898 to 1910 he held successively the positions of judge of the 6th district, judge of the court of appeals, and associate justice of the supreme court of the State. He was governor of Louisiana, 1912-16.

HALL, RANDALL COOKE. Clergyman and educator, died at Wallingford, Conn., July 27. He was born at Wallingford, Dec. 18, 1842; and graduated at Columbia in 1863 and studied at the General Theological Seminary of New York. He was ordained priest in the Protestant Episcopal Church in 1870 and from 1869 to 1899 was first instructor and then professor of Hebrew and Greek in the General Theological Seminary. After 1904 he was curate of the church of St. Mary the Virgin, in New York City.

HALSBURY, HARDINGE STANLEY GIFFARD, EARL OF. Former British cabinet minister, died in London, December 11. He was Lord High Chancellor in the ministries of Lord Salisbury and A. J. Balfour. He was born in London, Sept. 3, 1823, educated at Oxford and admitted to the bar in 1850. From 1875 to 1880 he was Solicitor General and from 1877 to 1885 Member of Parliament. His legal career began with the trial of criminal cases and throughout its long course a large number of the most important criminals were either defended or prosecuted by him. There was some scandal during his administration as Lord Chancellor owing to the large number of his relatives appointed to office. One of the chief accomplishments of his life was the codification of the laws of England in twenty-eight volumes. Lord Halsbury was regarded by many as one of the greatest lawyers of the Victorian Age. He held the Great Seal for a longer period than any other Lord Chancellor or Lord Keeper, except Lord Eldon. In politics he was a Tory and his influence was strong in the councils of his party for many years.

HALSEY, ABRAHAM WOODRUFF. Clergyman, died, April 20. He was born at Elizabeth, N. J., March 22, 1853, graduated at Princeton in 1879 and at the Princeton Theological Seminary in 1882. He was ordained to the Presbyterian ministry Oct. 10, 1882, and was for seventeen years thereafter pastor of the Spring Street Church, New York City. He was Secretary of the Board of Foreign Missions after 1899.

HAMILTON, JOHN. See NECROLOGY.

HAMILTON COLLEGE. A non-sectarian institution of the higher learning at Clinton, N. Y.; founded in 1812. There were 3248 enrolled for the fall session of 1921. There were 29 members of the faculty. The productive funds amounted to \$2,263,164 and the income for the year was

\$173,699. There were 90,484 volumes in the library. During the year Edward Franklin Hauch succeeded the late Professor Brandt in the chair of German and several other changes in the faculty occurred. An important feature of the year was the successful campaign of the alumni for an increase of the endowment, the sum aimed at being \$700,000 of which almost all had been subscribed by the summer of 1921. President, Frederick C. Ferry, LL.D.

HAMPTON NORMAL AND AGRICULTURAL INSTITUTE. An institution for the education of negroes and American Indians at Hampton, Va.; founded in 1838. The enrollment for the autumn of 1921 was 1308 and for the summer school 540. There were 159 members of the teaching staff of whom 37 were in the summer school. The productive funds were \$3,916,719 and the income \$458,911. There were 44,617 volumes in the library. Principal, Rev. James Edgar Gregg, D.D.

HANN, JULIUS VON. Austrian meteorologist, died at Vienna, October 1. He was acknowledged to be the world's leading meteorologist. He was born near Lins in Upper Austria in 1839; educated at the University of Vienna; became professor there of physical geography in 1873; professor at Graz, 1897-1900; and after 1900 again professor at the University of Vienna in the chair of cosmic physics. He served in the Central Meteorological Bureau at Vienna, twenty-nine years and was its director for twenty-three years. His numerous publications on climatology and meteorology are of the highest character, and have never been surpassed in number and value. They include the section on astronomical geography and cosmic physics in the *Allgemeine Erdkunde* (4th ed., 1886); *Handbuch der Klimatologie* (3 vols., 1883; 3d ed., 1908-11); *Die Temperaturverhältnisse der österreichischen Alpenländer* (1887); *Lehrbuch der meteorologie* (1901; 3d ed., 1914). He was for a long time editor of the *Meteorologische Zeitschrift*.

HANNA, DAN R. See NECROLOGY.

HANNA, SEPTIMUS JAMES. Lawyer, died at Pasadena, Calif., July 24. He was born at Spring Mills, Pa., July 29, 1844, educated in the public schools and academies and during the last year of the Civil War was captain of a Pennsylvania company. After the war he was admitted to the Pennsylvania bar and practiced at Chicago 1872-79. He then removed to Leadville, Col. He was editor of the *Christian Science Journal* and the *Christian Science Sentinel* and he was first reader in the Christian Science "Mother Church" at Boston, Mass., 1894-1902. He became president of the Christian Science Board of Education at Boston.

HANNAFORD, PHEBE ANN. Universalist minister, woman suffragist, and writer, died at Rochester, N. Y., June 2. She was born on the island of Nantucket in 1829 and brought up as a Quaker. She was the first woman ordained as minister in New England (1868). Her preaching was successful and she was several times called upon to act as chaplain at the legislature of Connecticut. She took a prominent part in the Temperance movement. Her writings include, besides several biographies, *The Soldier's Daughter* (1866); *The Young Captain* (1868); *From Shore to Shore and Other Poems* (1870); *Women of the Century* (1877).

HANSON, JOSEPH MILES. Social worker, died, January 11. He was born at Darlington, Wis., March 24, 1868, and graduated at Grinnell College, Iowa, in 1893. He became superintendent of a settlement club in New York in 1894 and in 1899 general secretary of the Associated Charities at Kansas City, Mo., where he established an industrial social settlement afterwards known as the Swope Settlement. In 1908 he settled at Youngstown, Ohio, where he organized the local social welfare work. He was prominent in various other activities in connection with social work and wrote a pamphlet entitled *Universal Civilian Training* (1919).

HARA, TAKASHI. Prime Minister of Japan, assassinated at Tokyo, November 4. The murderer who was arrested soon afterwards was a young man reported to be of the Samurai class, and extracts from his diary showed that he had been for a long time planning the crime. Prime Minister Hara was born in 1854 and served as an official in the Foreign Office at home and abroad, attaining the rank of vice-minister in 1895. In 1900 he was one of the organizers along with the late Prince Ito of the Seiyu-kai party and soon afterwards was made Minister of Communications. He held that portfolio again in the Seiyu-kai ministry of 1906-08 and after that visited Europe and America, being received in Washington by President Roosevelt in September, 1908. He was again a cabinet minister in 1915 holding the portfolio of Home Affairs and in 1918 became Premier. He was strongly self-assertive as Prime Minister and practically dominated the government. In general he was opposed to the too rapid absorption of European ideas. Other features of his policy were the more complete co-operation between the military and other branches of government service and a spirit of conciliation in foreign affairs. Many attempts were made to overthrow his cabinet, the opposition attacking it for its policy towards China in the matter of the twenty-one demands and for its Siberian policy. They demanded that the Japanese troops be withdrawn. Among many of his supporters there was a desire that he should go to Washington personally and represent the cause of Japan at the Disarmament Conference and he was expected to be the real force in shaping the policy of Japan at the Conference. Latterly negotiations with China over Shantung and the policy of the Conference at Darien in which Japan had hoped to come to an agreement with the Far Eastern Republic of Chita tended to sharpen the hostility between the political parties. The assassination occurred just at the moment when the Japanese delegation was gathering for the Washington Conference. He had made frequent speeches in the Diet in respect to the work ahead of the delegates and had conferred on the subject with the American Ambassador at Tokyo. In general he expressed the view that Japan's chief aim should be the removal of race barriers and he declared that his country was willing to compromise on the Shantung question and to agree to a limitation of naval armament. By many Japanese writers Premier Hara was regarded as one of the most progressive of the prominent statesmen of Japan and he was supported by the moderate element as a champion of non-militaristic policies and of friendly relations with the United States. A previous plot to

assassinate him was brought to light in May, 1920.

HARBORS. See PORTS AND HARBORS.

HARB, SIR JOHN. British actor-manager, died, December 28. His real name was John Fairs. He was born in London, May 16, 1844, and received a grammar school education. He made his first appearance at Liverpool, Sept. 28, 1864. In the following year he appeared in London in the whole series of Robertson comedies, his leading part being Sir Peter Teazle, and immediately achieved a remarkable success. In 1875 he became the manager of the Court Theatre and in 1889-94 he was manager of the Garrick Theatre. In 1890 he appeared as Benjamin Goldfinch in Sidney Grundy's *Pair of Spectacles*. Meanwhile Pinero had made his great success and Hare had appeared in *The Profligate*. Beginning in 1895 he made tours in the United States where he was received with great enthusiasm, especially in Pinero's *The Gay Lord Quex* and in *Caste*. He was for ten years in partnership with Mr. and Mrs. Kendal down to 1888. His acting brought him many friends and admirers from among the most distinguished persons of his time. The most successful of his later parts were those of old men, and these parts were of a great variety. As an actor he showed extraordinary finish of style, and secured his effects by quiet means. As a manager he was extraordinarily successful. Other noteworthy productions were *The Notorious Mrs. Ebbsmith*; *Money*; *Diplomacy*; and *Little Mary*. His latest appearances were in revivals of *A Pair of Spectacles* in 1917.

HARKINS, MATTHEW. Bishop, died at Providence, R. I., May 25. He was born at Boston, Mass., Nov. 17, 1845, graduated at the Boston Latin School, studied at the College of Holy Cross, Worcester, Mass., and at Belgian and French institutions of theology. He was rector of parishes in Massachusetts till 1887 when he was consecrated Bishop of Providence.

HARPER, EDWARD THOMSON. Theologian, died January 4. He was born at Sabula, Sept. 28, 1857, graduated at Oberlin College in 1881 and studied in Germany. He became a professor in 1892 at the Chicago Theological Seminary, holding first, the chair of Assyriology and comparative religion and later the chair of Old Testament literature and Bible theology.

HARPER, JOHN ERASMUS. Specialist in the eye and the ear, died January 8. He was born at Cadiz, Ky., Jan. 21, 1851, studied medicine in the medical college of New York University and was professor of ophthalmology and otology at the college of medicine in the University of Illinois from 1882 to 1914, after which he became professor emeritus.

HARRIS, MERRIMAN COLBERT. Bishop, died at Tokyo, Japan, May 8. He was born at Beetsville, Ohio, July 9, 1846, graduated at Alleghany College, 1873, and served for three years in the Civil War. He was ordained to the Methodist Episcopal Church and became a missionary in Japan. From 1886 to 1904 he was superintendent of the Japanese mission of the Methodist Episcopal Church in San Francisco and while in this office he established missions in Hawaii and on the Pacific coast. In May, 1904, he was made Bishop of Japan and Korea and retired in 1916. He wrote *One Hundred Years*

of Missions; Christianity in Japan, Japanese Proverbs.

HARVARD UNIVERSITY. A non-sectarian institution of the higher learning at Cambridge, Mass.; founded in 1636. There were 6073 students enrolled for the fall session. And the enrollment for the summer schools was 2377. In the undergraduate courses of arts and sciences there were 2678 students and in the Graduate School of Arts and Sciences, 582. The principal other schools and departments with their enrollment were as follows: Engineering School, 261; Law School, 999; Medical School, 472; School of Business Administration, 466; Dental School, 205; Graduate School of Education, 153; University Extension, 2377. The total number of members of these teaching staffs was 957. The productive funds amounted to about \$47,000,000 and the income for the year from investments, tuition, fees, etc., was over \$5,000,000. The library contained 2,018,000 books and pamphlets. In the course of the summer the Rockefeller Foundation gave about \$1,600,000 to the university for the establishment of a School of Public Health. An important change in the method of instruction during the year was the extension of the general examination for graduation from the college to all candidates for the college degree except those concentrating in mathematics and the natural sciences. Hitherto only those concentrating in History, Government, and Economics had had to take this general final examination, which covers the entire field of their concentration. Another significant change was the raising of the qualifications for admission to the Harvard Dental School, by the requirement of one year of pre-dental college work. President, Abbott Lawrence Lowell, LL.D., Ph.D.

HASE, OSKAR VON. German publisher, died in Leipzig, in February. He was born in Jena, Sept. 15, 1846. He entered the firm of Breitkopf and Härtel in 1871, became manager in 1873 and partner in 1875. From 1880 till his death he was head of the famous house. He published several valuable books on the history of the book-trade.

HASELTON, SENECA. Judge, died at Burlington, Vt., July 21. He was born at Westford, Vt., Feb. 26, 1848, graduated at the University of Vermont in 1871 and was admitted to the bar in 1875. He was a member of the Vermont house of representatives in 1886, mayor of Burlington, 1891-94; minister to Venezuela, 1894-95; judge of the supreme court of Vermont, 1902-06; superior judge, 1906-08 and judge of the supreme court again in 1908-19. In politics he was a Democrat.

HAUPTMANN, CARL. See NECROLOGY.

HAVERFORD COLLEGE. An institution of the higher learning under the control of the Society of Friends at Haverford, Pa.; founded in 1833. There were 225 students enrolled for the fall session and the faculty numbered 24. The productive funds amounted to \$3,158,963 and the total income \$1,008,731. The library contained 84,550 volumes. The gifts for the year amounted to \$271,738. President, William Wistar Comford, Ph.D., LL.D.

HAWAII. A territory of the United States, formally annexed, August 12, 1898; consisting of nine inhabited islands whose names and respective areas in square miles are as follows: Hawaii, 4015; Maui, 728; Oahu, 598; Kauai, 547; Molokai,

261; Lanai, 139; Niihau, 97; Kahoolawe, 69; Midway; and besides these there are a number of small uninhabited islands. Capital, Honolulu, on the island of Oahu.

POPULATION. The following information in respect to the population and vital statistics in 1921 was supplied by the governor: From the data and information obtainable, the population of the territory was estimated to be 275,884 on June 30, 1921, an increase of 15,584. Increases were noted for all races, except the following which showed a decrease for the year: Hawaiian, Chinese, Porto Rican, Spanish, and others. Honolulu, the island of Oahu; Hilo city, Maui, and Kauai showed a growth during the year, while the island of Hawaii and the county of Kalawao showed a loss of population.

ESTIMATED POPULATION, 1921, BY NATIONALITY

American, British, German, Russian.....	37,409
Chinese.....	22,378
Filipino.....	23,971
Hawaiian.....	21,907
Japanese.....	114,879
Korean.....	5,327
Asiatic-Hawaiian.....	6,499
Caucasian-Hawaiian.....	11,348
Portuguese.....	25,257
Porto Rican.....	5,491
Spanish.....	848
Others.....	570
Total.....	275,884

Deaths during the fiscal year numbered 3789; and births, 10,156; marriages, 3268. The population of the leper settlements at Kalaupapa and Kalawao, June 30, 1921, was 481 of whom 308 were males. This was a decrease of 65 in the total number, June 30, 1920. The islands are divided into five counties of which the areas and populations are given in the following table:

AREA AND POPULATION OF COUNTIES, 1920

County	Area Sq. mils	Population		
		Total	Per sq. mile	Per cent increase since 1910
Hawaii.....	4,015	64,895	16.2	17.2
Honolulu.....	600	123,527	205.9	50.6
Kalawao.....	11	667	60.6	15.0
Kauai.....	641	29,438	45.9	22.9
Maui.....	1,182	37,385	31.6	25.6

¹ Includes islands of Maui, Kahoolawe, Lanai, and all of Molokai except Kalawao.

The census figures of the territory by races are given in the following table:

CENSUS FIGURES, POPULATION OF THE TERRITORY OF HAWAII BY RACES

Race	1920	1910	Increase since 1910
Hawaiian.....	23,723	26,041	2,318
Asiatic Hawaiian.....	6,955	3,734	3,221
Caucasian Hawaiian.....	11,072	8,772	2,300
Portuguese.....	27,002	22,301	4,701
Porto Rican.....	5,602	4,890	712
Spanish.....	2,430	1,990	440
Other Caucasian.....	19,708	14,867	4,841
Chinese.....	23,507	21,674	1,833
Japanese.....	109,274	79,675	29,299
Filipino.....	21,031	2,361	18,670
Korean.....	4,950	4,633	417
Negro.....	348	695	1,347
All others.....	310	376	166
Total.....	255,912	191,909	64,003

¹ Decrease.

The city proper of Honolulu had a population in 1920 of 83,237. The immigrants and emigrants are shown in the following table:

NUMBER OF IMMIGRANTS			
	Men	Women	Children
Chinese.....	457	73	33
Japanese.....	1,733	1,583	437
Filipinos.....	2,830	329	145
Hindus.....	1	.....	.....
Koreans.....	3	8	5
Porto Ricans.....	.....	.....	.....
Portuguese.....	17	12	17
Russians.....	3	.....	.....
Spanish.....	.....	.....	.....
All others.....	325	188	25
Total.....	5,369	2,193	662

NUMBER OF EMIGRANTS			
	Men	Women	Children
Chinese.....	1,289	112	148
Japanese.....	2,952	1,780	2,137
Filipinos.....	1,934	221	279
Hindus.....	2	.....	.....
Koreans.....	44	13	9
Porto Ricans.....	3	5	8
Portuguese.....	67	35	134
Russians.....	19	11	19
Spanish.....	23	18	45
All others.....	353	251	55
Total.....	6,686	2,446	2,834

Excess of departures: Chinese, 986; Japanese, 3,116; Hindus, 1; Koreans, 60; Porto Ricans, 16; Portuguese, 190; Spanish, 86; Russians, 46; all others, except Filipinos, 121. Excess of arrivals: Filipinos, 870.

Of the civilian population about 44 per cent were Japanese, who with the Chinese, Filipinos, and Koreans brought the total Oriental element up to 64 per cent. The American, British, German, and Russian element made up about 14.4 per cent, including the military and naval population. It was estimated that six out of every ten children born in the territory were of Oriental parentage, and five out of every ten of Japanese parentage. The predominance of the Orientals has long been regarded as a serious question, especially that of the Japanese. They are ineligible to citizenship, which of course retards assimilation and disposes the Oriental settler to regard his residence as merely temporary. This influx of Orientals is not to be attributed to a definite movement of invasion, but is explained mainly by the need of the territory for industrial workers and the prevalence there of a spirit of great equality and tolerance among the races. The Japanese predominance has continued in spite of stoppage of immigration since 1908. This is explained not only by the large number of Japanese already in the country at that date, but by the high birth rate and low death rate. During the fiscal year, 1920-21, the Japanese births made up about half of the total. The birth rate of the Japanese was 42.74, while that of the white groups, namely, American, British, German, and Russian, was 15.88, being lower than that of any other group. But it is to be noted that while the Japanese are not eligible to citizenship, children born in the country of Japanese parents become citizens. It was estimated that by 1930 these Japanese citizens would come to about 28 per cent of the electorate, and by 1940 to about

47 per cent, attaining the majority in the course of the next ten years.

EDUCATION. Education is compulsory from the ages of six to fifteen, inclusive. In school attendance the territory stands higher than most of the States of the United States, having an average of over 92 per cent. The public school system of late years has been rapidly expanded, the number of pupils having almost quadrupled in twenty years. Increase in fact as been so rapid as to make the housing problem the most serious of the external difficulties. The public schools in 1921 numbered 174, and the private schools, 59. At the end of the fiscal year the number of pupils enrolled in the public schools was 41,151, an increase of 2856 over the preceding year. There were 7573 in the private schools or 167 more than the year before. There were 1362 teachers in the public schools of whom 1207 were females; and 402 in the private schools of whom 315 were females. There were two industrial schools, one for boys and one for girls, the former having an attendance of 159, July 1, 1920, and the latter of 137. The following information concerning recent legislation in respect to the foreign language schools was supplied in the governor's report. Provision for the regulation of "foreign-language schools" in the Territory, by which is meant any school conducted in any language other than English or Hawaiian, was made by act 30, of the legislature in special session, November, 1920. The department of public instruction is placed in charge of the administration of the law. Briefly, the act provides that no person shall conduct a foreign-language school in Hawaii without first obtaining a permit from the department of public instruction, and each teacher in such a school must similarly hold a permit from the department. Permits shall not be issued until the department is satisfied that the applicant is possessed of the ideals of democracy, knowledge of American history and institutions, and knows how to read, write, and speak the English language. Provision is made that the portion of the law relating to a knowledge of the English language shall be liberally construed during the first two years after the act became effective, July 1, 1921. Such schools are not to be conducted in the mornings before the public schools open, nor during the hours the public schools are in session. The first examinations under the new law were held at Honolulu, July 5-9, 1921. These examinations were attended by 492 teachers, all of whom were granted permits. There are approximately 200 foreign-language schools, 500 teachers, and 23,000 pupils in the Territory.

The most important question of the schools pertained to this matter of racial composition. According to the school survey completed in 1920 by the government, only two or three per cent of the children entering school at six or seven years of age could speak the English language. The majority used a local jargon, made up of native, Japanese, Chinese, Portuguese, and English words. The Orientals in the public and private schools on June 30, 1919, made up 54.5 per cent; the Latin races, including Portuguese, Spanish, and Porto Ricans, 18.5 per cent, and the Americans, British, Russians, Germans, and other Europeans, 5.5 per cent. The following table shows the racial elements in round numbers in the schools in 1921:

Hawaiian.....	3,400
Part-Hawaiian.....	4,500
Anglo-Saxon.....	1,200
Spanish.....	160
Portuguese.....	5,200
Porto Rican.....	1,100
Chinese.....	3,800
Japanese.....	20,000
Korean.....	700
Filipino.....	1,200
Others.....	500

Owing to the great numbers of Orientals and other foreigners, a question much discussed of late has been the danger that the American element would be completely denationalized, and there has been a movement in the larger cities and towns for separate schools for the whites. Experiments for the solution of this problem were being made, but nothing permanent had been accomplished in 1921. The diversity of languages has made necessary a special effort in the teaching of languages, and in 1921 there were as noted above about 200 foreign-language schools, most of the schools being Japanese. The Japanese foreign-language schools have been much criticised as tending to impose Japanese culture rather than American and have latterly been placed under territorial regulations which restrict attendance of pupils to one hour a day after school hours, etc. Education in Hawaii is of especial importance as it is the chief means of solving the difficult problems arising from racial diversity.

The University of Hawaii was established in 1919, and its work was divided between two colleges, the College of Applied Sciences and the College of Arts and Science. A marine laboratory was completed at Waikiki and in use during 1921.

tons and the pineapple yield at 5,500,000 cases. In 1920 and 1921 the country was suffering from a shortage of labor and in the latter year there were serious strikes among agricultural laborers. The labor shortage was explained in part by the return of many of the laborers to their native lands after the high wages of the preceding years and the absorption of them in other interests than agriculture. The condition was so serious that a committee was appointed by the governor to go to Washington and request legislation that would bring relief. This resulted in the passage of a measure which provided that in an emergency the Secretary of Labor might provide for the admission to the Territory of Hawaii a limited number of alien laborers under such conditions as he might prescribe. The total area in the 47 forest reserves in the territory in 1921 was 817,109 acres, of which 557,339 were owned by the government. A considerable advance was made in 1921 in the protection of these reserves and in reforestation. The homestead problem which has been much discussed in recent years led to the passage of the Hawaiian Homes Commission act which was signed by the President July 9. This constituted a commission of five members consisting of the governor and four citizens whom he should appoint. The policy aimed at preserving certain of the remaining public lands for the use of the natives and provided for a revolving fund for loans for the benefit of home-seekers.

MANUFACTURES. The United States Bureau of the Census issued in 1921 the results of the census of manufactures in Hawaii for 1919. The accompanying table gives a summary with corresponding figures from the census of 1909 for purposes of comparison:

	Manufacturing industries		Per cent of increased 1909-19
	1919	1909	
Number of establishments.....	496	500	— 0.8
Persons engaged.....	11,744	7,572	55.1
Proprietors and firm members.....	700	1,074	— 34.8
Salaried employees.....	1,075	594	81.0
Wage earners (average number).....	9,969	5,904	68.9
Primary horsepower.....	64,295	41,930	53.3
Capital.....	\$48,841,000	\$23,875,000	1034.6
Salaries and wages.....	8,666,000	2,795,000	210.1
Salaries.....	2,029,000	686,000	195.8
Wages.....	6,637,000	2,109,000	214.7
Paid for contract work.....	35,000	188,000	— 81.4
Rent and taxes.....	10,863,000	1,236,000	762.7
Cost of materials.....	81,144,000	25,629,000	216.6
Value of products.....	133,096,000	47,404,000	180.8
Value added by manufacture ¹	51,952,000	21,775,000	138.6

¹ A minus sign (—) denotes decrease.

² Includes 272 members of coöperative associations not reported in 1919.

³ Value of products less cost of materials.

The University of Hawaii grew out of the former College of Hawaii and was based on that establishment. Students' registration in 1921 nearly doubled that of the previous year, being 432 as against 242.

AGRICULTURE. The basic interest of the country is agriculture on which its commercial life depends. The production of raw sugar and the canning of pineapples are the chief industries. The sugar yield for 1921 was estimated at 583,894

Manufacturing is largely centralized in the cities of Hilo and Honolulu. In 1919 Honolulu produced 32.8 per cent of the total value of products, and employed 54.7 per cent of the average number of wage earners; the corresponding percentages in 1899 were 14 per cent and 25.4 per cent, respectively. The prosperity of Hawaii depends largely on the production of sugar. Rice ranked second in value of products in 1909. Its loss in position was due to the growth in the value

of pineapples canned, which increased 1094 per cent during the decade, while the increase in rice was 142.8 per cent. As the Hawaiian Islands have practically no mineral resources, all mineral fuel must be procured elsewhere, principally from the United States. In the sugar-mill industry a large amount of fuel is required and has been largely supplied by the refuse from sugar cane.

OCCUPATIONS. According to the returns of the Fourteenth Census, taken as of Jan. 1, 1920, there were 111,882 persons 10 years of age and over in Hawaii engaged in gainful occupations, constituting 43.7 per cent of the total population of the territory (255,912) and 59.8 per cent of the population 10 years of age and over (187,167). At the census of 1910, the 101,194 gainful workers constituted 52.7 per cent of the total population of the territory and 68 per cent of the population 10 years of age and over.

Of the gainful workers of Hawaii in 1920, 97,619, or 87.3 per cent, were males and 14,263, or 12.7 per cent, were females. The male gainful workers constituted 84 per cent of all males 10 years of age and over in 1920, as against 88.8 per cent in 1910, while the female gainful workers constituted 20.1 per cent of all females 10 years of age and over in 1920, as against 23.7 per cent in 1910.

Of the gainful workers of Hawaii in 1920, 56,244, or 50.3 per cent, were engaged in agri-

1920 was due, principally, to the great increase in the number of Filipino workers. Of the 18,037 workers in the "all other" group in 1920, 15,048 were Filipinos, 2712 were Koreans, 180 were Negroes, and 97 belonged to other races.

The 111,882 gainful workers of Hawaii in 1920 were distributed by age periods as follows: 10 to 13 years, 269, or two-tenths of 1 per cent; 14 to 15 years, 1333, or 1.2 per cent; 16 to 17 years, 3508, or 3.1 per cent; 18 to 19 years, 5631, or 5 per cent; 20 to 24 years, 16,880, or 15.1 per cent; 25 to 44 years, 54,682, or 48.9 per cent; 45 to 64 years, 27,231, or 24.3 per cent; 65 years and over, 2270, or 2 per cent; and age unknown, 78, or one-tenth of 1 per cent.

Of married persons 15 years of age and over in Hawaii in 1920, 60.9 per cent were gainfully occupied. The percentages gainfully occupied for married males and females 15 years of age and over were 97 and 18.8, respectively.

COMMERCE. Imports for the year ending March 31, 1921, amounted to \$90,301,260; exports, \$180,720,242. Of the imports those received from the United States amounted to \$77,739,381, and from foreign countries, \$12,561,879. Of the exports the shipments to the United States totaled \$177,173,234, and to foreign countries \$3,547,008. The foreign trade by countries is shown in the following table:

IMPORTS AND EXPORTS BY COUNTRIES¹

Countries	Imports		Exports	
	1920	1921	1920	1921
Australia.....	\$ 472,683	\$ 679,238	\$ 12,827	\$ 41,584
Other British Oceania.....	70,472	13,451	94,286	106,199
British India.....	1,534,924	940,740	703	1,461
Canada.....	141,730	121,323	340,104	739,645
Chile.....	1,353,012	1,692,923	.....	.....
France.....	8,263	11,633	.....	.....
Germany.....	.....	.....	.....	.....
Hongkong.....	769,901	948,268	15,011	16,982
Japan.....	4,774,223	6,705,679	323,847	132,701
United Kingdom.....	80,655	265,191	928,372	31
Other foreign.....	408,610	1,183,433	1,869,921	2,505,405
Total foreign.....	\$ 9,614,473	\$12,561,879	\$ 3,585,071	\$ 3,547,008
United States.....	53,669,174	77,739,381	101,194,733	177,173,234
Grand total.....	\$63,283,647	\$90,301,260	\$104,779,804	\$180,720,242

¹ Fiscal years ending March 31.

culture, forestry, and animal husbandry; 169, or two-tenths of 1 per cent, in extraction of minerals; 18,194, or 16.3 per cent, in manufacturing and mechanical industries; 7781, or 7 per cent, in transportation; 7343, or 6.6 per cent, in trade; 6282, or 5.6 per cent, in public service; 4117, or 3.7 per cent, in professional service; 8466, or 7.6 per cent, in domestic and personal service; and 3286, or 2.9 per cent, in clerical occupations.

Distributed by race, Hawaiians constituted 8203, or 7.3 per cent of the gainful workers in 1920; part Hawaiians, 3899, or 3.5 per cent; Caucasians, 21,325, or 19.1 per cent; Chinese, 11,603, or 10.4 per cent; Japanese, 48,815, or 43.6 per cent; and all other races, 18,037, or 16.1 per cent. In 1910 the distribution of the gainful workers by race was as follows: Hawaiians, 8654, or 8.6 per cent; part Hawaiians, 2760, or 2.7 per cent; Caucasians, 17,957, or 17.7 per cent; Chinese, 14,094, or 13.9 per cent; Japanese, 51,478, or 50.9 per cent; and all other races, 6251, or 6.2 per cent. The marked increase in "all other" races, from 6251, or 6.2 per cent of all gainful workers in 1910, to 18,037, or 16.1 per cent., in

The table on page 318 shows the domestic exports by articles in 1920 and 1921:

TRANSPORTATION. According to the governor's report in 1921 the steam railways had a mileage of 325. In addition, the plantations had their private lines which in the preceding year had a mileage of 628. The gross tonnage of vessels entering the ports during the fiscal year was 6,088,689 as compared with 5,430,976 in 1920.

FINANCE. Valuation of all real and personal property in the territory as rendered by the tax assessors in 1921 was \$286,557,332, a decrease of 1.56 per cent from 1920. The treasury cash balances, all accounts, amounted, June 30, 1921, to \$4,717,811 as compared with \$3,370,648 in the preceding year. The total revenue collected during the fiscal year was \$11,467,895; total disbursements were \$13,243,049. The greater part of the above receipts were from taxation, especially from the taxes on real and personal property and income. The total bonded debt on June 30, 1920, was \$10,894,000. Other issues followed in the course of the year and the outstanding bonded

DOMESTIC EXPORTS BY ARTICLES, FISCAL YEARS 1920 AND 1921¹

Articles	United States, 1921		Foreign, 1921 ¹	
	Quantity, pounds	Value	Quantity, pounds	Value
Sugar.....	1,037,936,562	\$144,517,041	343,525	\$ 54,473
Coffee.....	2,346,393	424,381	391,690	85,849
Fruits and nuts ¹		28,527,603		915,502
Rice.....	662,918	59,769	5,100	4,06
Hides.....	1,329,298	230,670		
Other.....		3,373,350		2,474,970
Total.....		\$177,132,814		\$ 3,531,200

Articles	Total, 1921		Total, 1920	
	Quantity, pounds	Value	Quantity, pounds	Value
Sugar.....	1,038,280,087	\$144,571,514	1,070,513,472	\$ 78,626,759
Coffee.....	2,738,083	510,230	2,760,046	732,393
Fruits and nuts ¹		29,443,105		19,803,951
Rice.....	668,018	60,175	2,480,826	246,554
Hides.....	1,329,298	230,670	1,497,786	376,227
Other.....		5,848,320		4,829,794
Total.....		\$180,664,014		\$104,615,678

¹ For fiscal years ending March 31.¹ Mostly pineapples.

ndebtedness of the territory on June 30, 1921, was \$12,600,000.

LEGISLATURE. In the general election of November, 1920, there were 26,335 registered voters. Of these only 1904 were of Anglo-Saxon or Latin races. The regular session of the legislature was held during the months of February, March, and April, and 250 acts were passed. Of these may be mentioned: An act raising the limit of outstanding bonded indebtedness to \$17,500,000; a number of acts pertaining to the improvement of sanitation and to the eradication of disease; an act creating a commission on the legends and folk lore of Hawaii; an act relating to the preservation of Hawaiian music; acts creating a court of domestic relations, regulating the hours of child labor, creating an emergency labor commission, etc.

TERRITORIAL OFFICIALS. The leading officials of the territory in 1921 were as follows: Governor, W. R. Farrington; Secretary, C. R. Iaukea; Attorney General, Harry Irwin; Treasurer, Delbert E. Metzger; Commissioner of Public Rates, C. T. Bailey; Supervisor of Public Works, Lyman H. Bigelow; Supervisor of Public Instruction, Vaughan Mac Caughy; Chief Justice Supreme Court, J. L. Coke; Delegate to Congress, J. K. Kalaniana'ole.

Progress was reported in the treatment of leprosy, according to a plan developed by Dr. Arthur L. Dean, President of the University of Hawaii. At the Kalihi Leprosy Station, 94 of the 100 had been paroled in a little over a year on the recommendation of doctors who said that the disease had been arrested and was no longer dangerous in their cases. The American Medical Association published a report on the subject indicating favorable results. This declared that up to the time of the publication of the report no patient on parole after Oct. 1, 1918, had shown a recurrence of the disease. The method of treatment involves the use of the fatty acids of chaulmoogra oil and many thousands of chaulmoogra trees have been set out under the Hawaiian Department of Agriculture.

HAWKER, HARRY. See NECROLOGY.

HAWLEY, ROBERT BRADLEY. Former Congressman, organizer of the Cuban-American Sugar

Company, died in New York City, November 28. He was born at Memphis, Tenn., Oct. 25, 1849, and at the age of twenty-one became a merchant at Galveston, Texas. In 1898 he was elected on the Republican ticket to Congress, where he served in the Fifty-sixth and Fifty-seventh Congresses. In 1916 when he organized the Cuban-American Sugar Company he became its President and remained in that office until his death. He was one of those chosen early in 1921 to serve on the Cuban Sugar Commission created by the President of Cuba.

HAY. Since the close of the European war the international movement of hay has been relatively small, and data regarding production and prices in different countries have not received the attention accorded them during the war period. The production of hay in the United States in 1921 according to estimates by the Department of Agriculture amounted to 96,802,000 tons of which 81,567,000 tons were tame hay and 15,235,000 tons wild hay. The total area was reported at 74,225,000 acres and the average yield per acre at 1.3 tons or 0.13 tons under that of the preceding year.

The area devoted to tame hay was 58,742,000 acres and the average yield per acre 1.39 tons while the average acre-yield of wild hay was only 0.98 ton. The farm value on Dec. 1, 1921, was \$11.27 per ton as compared with \$16.70 and \$19.45 per ton in 1920 and 1919, respectively. The average farm value of wild hay on Dec. 1, 1921, was only \$6.63 per ton. The total value of the hay crop on the basis of \$11.27 per ton was \$1,090,776,000 or only a little over one-half the total value of the crop of 1919. The hay markets of 1921 were characterized by dull trading. Prices had declined to a marked extent from May to December in 1920 and there was practically no recovery in 1921. In April, only a short time before new hay was expected on the markets, about 35 per cent to 40 per cent of the 1921 surplus still remained to be marketed, and during the fall shipping period the market movement was much below normal. High freight rates largely limited shipments.

Canada in 1920 produced 13,339,000 tons of hay, including 584,000 tons of alfalfa hay, on 10,618,000 acres.

HAYDEN, JAMES RAYNOR. Surgeon, died at Woodmere, L. I., October 10, in circumstances indicating suicide. As a genito-urinary specialist he was widely known. He was born in New York City in 1860, and graduated at the College of Physicians and Surgeons in 1884 and taught there as Professor of Urology. He was a member of the various scientific bodies in his field and was genito-urinary surgeon at Bellevue Hospital, New York City, and at St. Joseph's Hospital, Yonkers, N. Y.

HAYS, JOHN. Lawyer and financier, died at Carlisle, November 29. He was born at Carlisle, Pa., Feb. 2, 1837, and graduated at Dickinson College in 1857. He served during the Civil War on the staff of General William Hays and participated in the battles of Antietam, Fredericksburg, and Chancellorsville. He practiced law 1859-98, specializing in corporation law. He was president of the Carlisle Deposit Bank 1874-93 and editor and proprietor of the *Carlisle Herald* 1877-1909.

HAZELTON, GEORGE COCHRANE. See NECROLOGY.

HEALY, A. AUGUSTUS. Leather merchant and patron of art, died in Brooklyn, N. Y., September 28. For twenty-five years he had been president of the board of trustees of the Brooklyn Institute of Arts and Sciences. He was born in Brooklyn, June 28, 1850, and educated at the Polytechnic Institute there. He then entered his father's business as a leather manufacturer, the firm being one of the most important of the time, and for some years he was head of the company. He was also a director of the Central Leather Company and for eight years its vice-president, retiring in 1920. He was especially known as an art connoisseur and benefactor, giving to the Brooklyn Institute several hundred thousand dollars in works of art or in actual money. Under his administration the Institute made extraordinary progress. Although active in politics he held office but once when, during the second Cleveland administration, he was Collector of Internal Revenue. The value of his estate was estimated at nearly \$2,000,000, of which \$120,000 was bequeathed to the Brooklyn Institute and \$100,000 was to be invested and its income devoted to the purchase of works of art for the institution museum.

HEART DISEASE. In 1785 Dr. William Withering of Birmingham, England, published a work on the medicinal properties of the plant known as foxglove which revolutionized our treatment of heart disease, foxglove being the popular name of digitalis. By aid of this drug a patient helpless from dropsy and hardly able to breathe was able after weeks and months of suffering to get up and resume active life as long as he continued the use of the remedy. While numerous other cardiac stimulants have since been introduced into practice they are practically all for temporary use in emergencies. It was hardly thought possible that another drug of the calibre of digitalis would be discovered. Recently, however, such a one has been found in quinidine, one of the cinchona alkaloids hitherto regarded as of no therapeutic value worth mentioning. Its discovery took place in 1833, which is certainly giving it plenty of time to make good. But at a meeting of the New York Academy of Medicine last November, one of the two papers of the evening was given over to the discussion of quinidine in certain serious disorders

of the heart known technically as "flutter" and "fibrillation." The first use of the drug in question was by Frey in 1918, and the experience of three years has resulted in the publication of 200 favorable results, in a number of which the defective condition of the heart was perhaps permanently remedied. Unlike digitalis the drug is hardly to be regarded as poisonous at all, any more than its close relative quinine. Many of the patients who benefited by quinidine were already under control by digitalis, but in other cases there is no mention of the latter and quinidine alone seems to have restored the compensation of the disabled heart and to have put the patients on their feet again. Dr. Lewis A. Conner of New York declared that the restoration to normal rhythm of a heart which had been fibrillating for years was "a most dramatic and astounding event."

HEDGE, CHARLES GORHAM. See NECROLOGY.

HELIGOLAND. An island of the North sea formerly fortified, ceded by England to Germany in 1890; dismantled by Germany under the terms of the Treaty in 1919.

HELIUM USED IN AIRSHIP. See AERONAUTICS.

HELLBUTT, EMIL. See NECROLOGY.

HEMPL, GEORGE. Philologist, died, August 14. After 1906 he was professor of Germanics at Leland Stanford University. He was born at Whitewater, Wis., June 6, 1859; graduated at the University of Michigan in 1879, and at the University of Jena in 1889. After holding principalships of high schools in Michigan and Indiana, he became instructor of German at Johns Hopkins from 1884 to 1886; then studied in German universities; and in 1889, entered the English department of the University of Michigan where he was professor of English from 1893 to 1897, and professor of English philology and general linguistics until 1906, when he received the appointment above mentioned. He served successively as president of the American Dialect Society; the Modern Language Association; the American Philological Association; and the Philological Association of the Pacific Coast. Among his numerous writings may be mentioned: *Old English Phonology* (1892); *Chaucer's Pronunciation* (1893); *German Orthography and Phonology* (1897); *Phonetic Text of Wilhelm Tell* (1900); and many articles in the learned periodicals. After 1906 he applied himself especially to the deciphering of prehistoric Mediterranean tongues.

HENDERSON, SIR DAVID. British army officer; Director-General of the League of Red Cross Societies, died August 18. He was born August 11, 1862, and entered the army in 1883. He served in the Sudan in 1898 and in the South African War 1899-1900. He served with distinction in both wars and was wounded in the second. During the late war he was promoted to the rank of lieutenant-general and was director-general of military aeronautics. He wrote *The Art of Reconnaissance* (1907).

HENRY, EDWARD STEVENS. Former Congressman from Connecticut, died at Rockville, Conn., October 10. He was born at Gill, Mass., Feb. 10, 1836, removed in childhood to Rockville, Conn., and was educated in the public schools. He was prominent in various financial companies and a successful breeder of thoroughbred stock. He was a member of the Connecticut legislature in 1883 and in 1887-88; State treasurer,

1889-93 and a member of Congress from Connecticut 1895-1913.

HEPBURN, ANDREW DOUSA. Educator, died, February 14. He was born at Williamsport, Pa., Nov. 14, 1830; graduated at Jefferson College, Pa., 1851, the University of Virginia, 1854, and Princeton Theological Seminary, 1857. He was ordained to the Presbyterian ministry, 1858, and held a pastorate at New Providence, Va., until 1860 when he was appointed professor of logic, rhetoric, and the English language and literature at the University of North Carolina. He held that position until 1867 when he was appointed to the same chair at Miami University of which he was president from 1871 to 1873. In the following year (1874) he became professor of mental philosophy and English literature at Davidson College, and was president of that institution from 1877 to 1885. He then returned to Miami University as professor of English and held that chair until 1908 when he resigned. He was the author of a manual of English rhetoric.

HERBERT, Sir ARTHUR (JAMES). British diplomat, died in England, August 31. He was born August 22, 1855, and educated at Christ Church, Oxford. After 1879 he was in the diplomatic service and held posts in Russia, Persia, South America, etc. In 1884-85 he was a member of the mission for determining the Afghan frontier. In 1902 he was Consul General at Budapest and in 1905-10 Minister to Norway. Early in his career he had served as a Secretary of Legation at Washington.

HEREDITY. See **ZOOLOGY**.

HERNANDEZ, JOSE MANUEL. Military officer and political leader in Venezuela, died in New York City, August 25. He was born in 1853. He had been a leader in several revolutions, his last revolutionary attempt having occurred in 1914. It was unsuccessful, and he lived after that in Havana.

HERT, ALVIN TOBIAS. Manufacturer, died, June 7. In 1916 he was the western manager of the Republican presidential campaign. He was born at Owensburg, Ind., April 8, 1865; and after 1904 was the president of the American Creosoting Company which operated fifteen plants in this country. He was prominent in financial and political circles of Kentucky. From 1916 to 1920 he was a member of the Republican national committee from Kentucky.

HESSE. One of the states of the former German empire in which it was a grand duchy; proclaimed a republic early in November, 1918; situated in the western part of Germany. Capital, Darmstadt. Area, 2968 square miles; population, 1919, 1,291,249. Darmstadt had a population of 82,368. The largest city is Mayence or Mainz with 107,930 (including suburbs). Other large towns with their populations in 1919 were: Offenbach, 75,380; Worms, 44,290; and Giessen, 33,409. In 1920 there were 979 public elementary schools with 4282 teachers and 204,709 pupils. The chief crops are: Rye, potatoes, barley, and wine; and the chief manufactures: Leather, clothing, paper, chemicals, vehicles, machinery, furniture, musical instruments, etc. The budget for 1920 balanced at £12,474,707. After the new republic was proclaimed in November, 1918, work was begun on the constitution, which was adopted, Dec. 20, 1919. Executive power is in a ministry of four members; and legislative

power, in the Landtag or diet of seventy members, elected for three years. At the beginning of 1921 the prime minister was Herr Ulrich (Socialist).

HESTER, WILLIAM. Publisher, died, June 9. He was born at Poughkeepsie, N. Y., Dec. 7, 1835; and received an academic education. He was president of the Brooklyn *Daily Eagle*, and director of the Eagle Warehouse and Storage company.

HEWETT, WATERMAN THOMAS. American university professor, died in London, England, September 13. He was born at Miami, Mo., Jan. 10, 1846; graduated at Amherst College in 1869, studied in Greece and in Germany and in 1870 was appointed assistant-professor of German at Cornell University. He was made professor of German language and literature in 1883 and held that chair until 1910, being at the same time head of the German department. He contributed extensively to periodicals on German subjects and was the editor of MacMillan's "German Classics" after 1895. He wrote *The Frisian Language and Literature* (1879); *Cornell University, a History* (4 vols., 1905); and edited a number of German texts.

HEWITT, PETER COOPER. Scientist and inventor, died, August 25. He was especially known as the inventor of the mercury vapor electric lamp and the mercury vapor rectifier which bear his name. He was born in New York City in 1861, the son of Abram Hewitt, former mayor of New York, and the grandson of Peter Cooper. He early became director of the Copper Hewitt Electric company and of various other corporations; and he was trustee of Copper Union; and a member of numerous philanthropic and scientific bodies. Besides the inventions above mentioned he devised numerous mechanical appliances, and made important contributions to the knowledge of wireless telegraphy.

HEXAMER, CHARLES JOHN. Civil engineer, died at Philadelphia, Pa., October 15. He was born at Philadelphia, May 9, 1862, graduated at the University of Pennsylvania in 1882 and practiced the profession of civil engineering in Philadelphia from 1882 to 1917 when he retired. He wrote *Spontaneous Combustion* (1885); and several volumes on the subject of fire and its prevention; also a volume of *Essays* (1912) and of *Speeches* (1913). He issued 40 volumes of insurance maps of Philadelphia.

HIDES. See **LEATHER**.

HIERONYMUS, G. See **NECROLOGY**.

HIGH SCHOOLS. See **EDUCATION**.

HILDERBRAND, ADOLF VON. See **NECROLOGY**.

HILLARD, CHARLES W. Railway official, died in New York City, March 8. He was born in England in 1855 and came to the United States in 1876. He was first engaged in the president's office on the Chicago, St. Paul and Minneapolis Railroad. After rising through the various grades of the service he was vice-president after 1907 of the St. L. and S. F. R. R. and he was also vice-president of the C. & E. I. R. R. 1907-13.

HINDI LANGUAGE. See **PHILOLOGY, MODERN**.

HISTORICAL ASSOCIATION, AMERICAN. A national organization for the promotion of historical writing and studies in the United States. It was founded in 1884 by a group of representative scholars, and in 1889 was chartered by Congress. Membership is not limited to those professionally or otherwise actively engaged in histor-

ical work, but includes others interested in history and in the advancement of historical science. Membership in the Association in 1921 numbered 2633. Its annual reports are published by the United States Government through the Secretary of the Smithsonian Institution. The reports of 1917, in one volume, and of 1918, in three volumes, were published in 1921. They are distributed free to all members. The Thirty-Sixth annual meeting of the Association was held at St. Louis, Mo., December 27-30, in conjunction with several other historical societies. Many important papers were read, as well as valuable collections of documents by committees of the Association. For the encouragement of historical research the Association offers two biennial prizes, of \$200 each, for the best printed or manuscript monograph by any writer who has not achieved an established reputation. The Justin Winsor prize, offered in even years, is awarded to an essay in the history of the western hemisphere. In odd years the Herbert Baxter Adams prize is awarded for an essay in the history of the eastern hemisphere. The *American Historical Review* is the official organ of the Association and the recognized organ of the historical profession in the United States. It is published quarterly and presents authoritative articles, critical reviews of important new work on history, etc. It also publishes the *Historical Outlook*, which is devoted to the subject of history teaching. Officers of the Association elected at the December meeting were: President, Charles H. Haskin; First Vice-President, Edward P. Cheyney; Second Vice-President, Woodrow Wilson; Secretary, John S. Bassett; Treasurer, Charles Moore; Editor, Allen R. Boyd. Headquarters of the Association are in the Woodward Building, Washington, D. C. A Pacific coast branch of the Association was organized in 1904 to afford members in the Far West an opportunity to have meetings and an organization of their own.

HISTORY. See LITERATURE, ENGLISH AND AMERICAN.

HITE, B. H. See NECROLOGY.

HOAR, EDWARD WALLACE. See NECROLOGY.

HOCKEY. Ottawa, Canada, repeated its success of the year before in winning the Stanley Cup, emblematic of the world's professional hockey championship. The Vancouver Club was runner-up, losing the deciding competition in a five-game match. The University of Toronto captured the Allen Cup, carrying with it the world's amateur championship, Brandon, another Canadian team, finishing second.

Among the U. S. colleges Harvard once more led the way, scoring easy victories over her two chief rivals, Yale and Princeton, and defeating several smaller colleges as well. Cleveland won the National Hockey League honors after a bitter struggle with the team of Eveleth, Minn. Each contender captured two games, but Cleveland was declared the winner by reason of its greater goal scoring.

HODGSON, HENRY B. English bishop, died at Bury St. Edmunds, England, February 28. After 1914 he was Bishop of St. Edmundsbury, and Ipswich. He was born in Wales, March 10, 1856, and graduated with honors at Queen's College and Christ Church, Oxford. He was ordained priest in 1880 and from 1897 to 1914 was vicar of Berwick-on-Tweed.

HOG CHOLERA. See VETERINARY MEDICINE.

HOGG, WILLIAM STETSON. Naval officer, died, May 28. At the time of his death he held the rank of commodore. He was born at Washington, D. C., Nov. 11, 1856; graduated at the United States Naval Academy in 1876. He retired, June 30, 1909. During the Spanish-American War he was engaged on the *Miantonomah* in blockade duty; and he was executive officer on the *Monocacy* in Chinese waters, and present at the bombardment of the Taku forts during the Boxer Rebellion. He was in command of the supply ship *Glacier*, in its trip around the world in 1908-09.

HOGS. See LIVE STOCK.

HOLLAND. See NETHERLANDS.

HOLLIDAY, JOHN HAMPDEN. Publisher, died at Indianapolis, Ind., October 20. He was born at Indianapolis, May 18, 1846, and served in the Indiana Volunteers during the Civil War. He graduated at Hanover College in 1864. He founded the *Indianapolis News* in 1869 and was its editor until 1892, and later he established in coöperation with William J. Richards the *Indianapolis Press* which was consolidated with the *News* in 1901. He was president of the Union Trust Company 1901-16 and director of various other important financial and social institutions.

HOLY CROSS, COLLEGE OF THE. A Roman Catholic institution of the higher learning conducted under the Society of Jesus at Worcester, Mass.; founded in 1843. In the fall of 1921 there were 752 students enrolled and there were 41 members of the faculty. The library had 40,000 volumes. In 1921 a new dormitory building was in process of construction for the accommodation of about 200 students. President, Rev. James J. Carlin, S. J.

HOME DEMONSTRATION. See AGRICULTURAL EXTENSION WORK.

HONDURAS. A republic of Central America. Capital, Tegucigalpa.

AREA, POPULATION, ETC. The area is estimated at 44,275 square miles; and the population in 1920 at 637,114, giving a density of 12.5 inhabitants per square mile. The capital, Tegucigalpa, had 38,950 inhabitants in 1920. Other towns with their populations of 1920 are: La Esperanza, 11,453; Santa Rosa, 10,574; Nacaome, 8152; Choluteca, 8065. The chief ports are: Amapala on the Pacific; and Puerto Cortez and Omoa on the Atlantic. There are several other ports of entry on the Atlantic. The natives are chiefly Indians of mixed Spanish breed, but in the region of the north coast there are a number of negroes. In 1920 there were 867 primary schools with 1107 teachers and 35,912 pupils in attendance. The school census complete in December, 1919, showed that there were in the republic 87,207 children from 7 to 15 years of age, of whom 35,912 were receiving instruction. During the 1920 school year 247 boys and 240 girls were students in the four normal schools of the country. The National Institute of Tegucigalpa, the National School of Secondary Education in Santa Rosa de Copán, La Independencia School in Santa Barbara, León Alvarado School in Comayagua, and La Fraternidad School in Juticalpa are all secondary institutions. In 1920 the total number of teachers in these schools was 71 and of students 259. Graduates from these

schools are given the degree of Bachelor of Arts and Sciences. The University of Tegucigalpa is the only school granting the professional degrees of law, medicine, pharmacy, and civil engineering. Its courses in these subjects are open only to students with the degree given by the secondary schools.

PRODUCTION. The chief product is bananas which are grown mostly on the Atlantic coast. The exports in 1920 amounted to 11,524,149 bunches. Coconuts are also grown profitably, and form an important article of export. An excellent quality of coffee is raised. Other products include: Tobacco, a variety of fruits, beans, rice, wheat, indigo, henequen, and the castor oil plant. Stock-raising is of considerable importance. In 1919 the cattle numbered 103,120. Mineral resources include: Gold, silver, copper, lead, zinc, antimony, and iron.

COMMERCE. The following information in regard to business conditions and foreign trade was supplied by the United States Bureau of Domestic and Foreign Commerce. Business in Honduras suffered during 1921 and practically all firms took severe losses. However, there were no failures. Most of the houses showed foresight in promptly cutting prices heavily immediately after the market began to weaken, thus succeeding in disposing of a large part of their high-priced stock and obtaining cash for purchases at the new level. There was very little complaint on the part of foreign exporters against Honduran concerns for cancellation of contracts, scarcely any goods being refused because of the drop in prices. The buying strength of the country in 1921 can be seen in the increase (during a period of falling prices) in the values of imports from \$12,860,762 in the year 1919-20 to \$16,722,700 in 1920-21. The amount imported in 1919-20 was itself an increase from \$6,931,376 in 1918-19. The greatest amount of imports was consumed in the district supplied by Puerto Cortes, although the ports of La Ceiba and Amapala took only slightly less. The United States supplied 84 per cent of all the goods imported into the Republic. Of the total imports, 44 per cent was admitted free of duty. The liberality of Honduras toward concessions may be seen by the fact that the imports admitted free by concession amounted to \$6,323,589. The principal exports of Honduras are bananas, sugar, silver bullion, coconuts, and hides. While the quantity of the exports of the first two was larger than during the previous year, the fall in prices greatly depreciated their total value. The exports of silver fell off considerably owing to the closing of the Rosario mines in April, and the trade in coconuts and hides was less than in the previous year. Of the total exports the United States took 96 per cent. While the country was suffering from the low price of its exports, the banks followed a conservative policy and merchants limited their purchases to absolute necessities, thus preventing overstocking. Financially the year was a very satisfactory one for the Government.

FINANCE. The net revenue for the economic year of August 1, 1921, to July 31, 1922, was estimated at \$6,674,894.80. The customs revenue was estimated at \$3,480,000; monopolies, \$2,125,000; stamped papers, liquors, and cattle tax, \$395,000; mails, telegraphs, and cables, \$190,000; sundry revenues, \$559,894.80; and special revenues,

\$425,000, giving a gross total of \$7,174,894.80 which after the subtraction of \$500,000 for the expenses of tax collection leaves the net sum above mentioned.

RAILWAYS. The railways in 1920 had a mileage of 463, and included the line from Puerto Cortes to Potrerillos, 60 miles in length, which was acquired by the government in 1912; and four others of which the longest was the Tela railway (about 155 miles). Other lines were being extended in 1921.

ARMY. All citizens between the ages of twenty-one to thirty-five are liable to military service in the regular army, and those between thirty-five and forty, in the reserves. The number of fighting men, July 31, 1918, was placed at 46,106; and the reserves, at 21,505.

GOVERNMENT. The executive power is in a president elected by popular vote for four years; and legislative power, in a congress of deputies of forty-two members, also chosen for four years by popular vote. The president is assisted by a council of five ministers who are the heads of the following departments: Foreign Relations; Government and Justice; War; Treasury and Public Credits; Public Works and Agriculture; Instruction. President, at the beginning of 1921, General Rafael Lopez Gutierrez.

HONGKONG. A British crown colony situated in the mouth of the Canton river off the southwest coast of China about ninety miles south of Canton. It consists of an island, irregular in shape with a breadth of from two to five miles; and a length of about eleven miles, the area being a little over thirty-two square miles; and to it is attached on the mainland the peninsula of Kowloon with an area of about 356 square miles. The total area of the colony is in the neighborhood of 390 square miles. The civil population estimated in the middle of 1919 was 598,100 of whom the Chinese numbered 584,500. Of the white inhabitants, about one-half were British and one-third, Portuguese. The schools are all inspected by the state, but education is not compulsory. In 1920 the total number of pupils in all the schools was 25,786. A university at Hongkong was opened in March, 1912; and in 1919-20 had 230 students, mostly Chinese. Hongkong is one of the chief commercial centres of the Far East. The British Empire has the largest share of the trade. In 1919 the imports from the British Empire were valued at £19,746,010 of which £5,129,784 came from the United Kingdom; £70,905,698 from foreign countries; total, £90,651,708. The exports in 1919 were as follows: To the British Empire, £18,993,145 of which £2,698,813 went to the United Kingdom; to China and Japan, £62,649,784; to other foreign countries, £22,300,005; total, £103,942,934. For further details as to the distribution of the foreign trade in 1919, see preceding YEAR BOOK. The figures for the trade of Hongkong with the United Kingdom in 1920 were as follows: Imports into Great Britain, £2,506,333; exports of British products to Hongkong, £13,112,752; exports of foreign and colonial products, £302,338. The government is under a governor aided by executive and legislative councils. Governor at the beginning of 1921, Sir R. E. Stubbs.

HOOK, WILLIAM CATHER. Judge, died at Sayner, Wis., August 12. He was born at Waynesburg, Pa., Sept. 24, 1857; and after a high school

education, studied law at the St. Louis Law School. He practiced law from 1878 to 1899. From the latter year until 1903 he was United States district judge for Kansas; and in 1903 became circuit judge of the Eighth Judicial Circuit.

HOPS. The world's hop production in 1921 was more than 20 per cent below that of 1920. There was a slight increase in acreage over the area devoted to the crop in 1920, but the yield in all the principal hop-producing countries of Europe, owing mainly to dry weather, was below normal. Provisional estimates published by the International Institute of Agriculture, Rome, placed the 1921 yields of the different countries as follows: Germany, 7,100,000 lbs., Belgium, 4,990,000 lbs., Great Britain, 25,090,000 lbs., and Czechoslovakia, 5,530,000 lbs. These figures show some recovery from the reduction in acreage and yield due to war conditions, but they point out also that hop culture has not as yet regained its prewar status. In 1914 Germany produced 51,227,000 lbs., Belgium in 1913, 7,395,000 lbs., Great Britain in 1914, 56,813,000 lbs., and Czechoslovakia the same year 32,628,000 lbs.

The United States, according to estimates by the Department of Agriculture, in 1921 produced 29,140,000 lbs. of hops on 28,000 acres, the average yield being 1,040.7 lbs. per acre. In 1920 the acreage was the same but the production amounted to 34,280,000 lbs. The farm value of hops on December 1 was 24.4 cts. per lb. as compared with 35.7 cts. and 77.5 cts. per lb. on the corresponding dates in 1920 and 1919 respectively. As usual, the crop was produced in the three Pacific Coast States and New York. The production in New York was approximately 1,000,000 lbs., in Washington, 4,800,000 lbs., in Oregon, 9,000,000 lbs., and in California, 14,400,000 lbs. The average yield per acre was reported provisionally for the different States as follows: New York, 600 lbs., Washington, 1700 lbs., Oregon, 800 lbs., and California, 1230 lbs.

For the year ended June 30, 1921, the consumption of hops in the United States amounted to nearly 6,000,000 lbs. and the exports to over 22,000,000 lbs.

HORLICK, Sir JAMES. See NECROLOGY.

HORNUNG, ERNEST WILLIAM. British writer, celebrated as the creator of the character "Raffles," died in France, March 27. He was born June 7, 1866, and after spending two years in Australia in his youth, began the writing of stories about the year 1887, many of which were based upon his Australian experience. These included, among many others, *A Bride from the Bush* and *The Rogue's Marriage*. His great reputation, however, was based on *The Amateur Cracksmen*, of which the hero was "Raffles" familiar to readers and playgoers throughout the English-speaking world.

HORSES. See LIVE STOCK and VETERINARY MEDICINE.

HORTICULTURE. The outstanding feature of the year was the widespread spring freezes which, associated with a tendency on the part of vegetable and truck growers to reduce acreage due to the depressed markets and high price of labor, greatly curtailed the total production of fruits and vegetables in North America during 1921. In certain favored localities large crops were produced; an unusually large yield of apples was obtained in the Northwestern States, in

British Columbia, and in the extreme northeastern area, embracing Maine and Nova Scotia; the citrus crop of Florida and California and the peach crop of Georgia were exceptionally large. Despite the severe losses to fruit growers in the sections devastated by several freezes, it is probable that the consequent diminished supply contributed largely to stabilizing the market during a most depressing period. The largest citrus crop in the history of California, totaling 60,147 carloads and netting the growers over \$83,000,000, was handled during the year ended October 31. Boxed apples from the Northwest sold rapidly and at unusually high prices. The large Georgia peach crop was profitably and rapidly disposed of, and those Eastern growers that were fortunate enough to have fruit of any kind sold quickly at extremely favorable figures.

Extraordinary droughts obtaining in continental Europe and Great Britain tended to materially reduce the yield of fruits as well as other farm crops. Frosts in February and March affected the almond crop in Sicily. The Italian lemon crop was large and the export trade so small that the outlook for a time was most depressing; however, the situation was saved by by-products manufacturers, who utilized the fruit in the production of citrates. Grape growing in Spain was greatly stimulated by the increased demand for raisins by the United States.

CANNING INDUSTRY. The canning industry suffered severely in 1921 from the necessary readjustment of war prices to a firm, sound business level. This rapid decline caused extensive losses to wholesale and retail dealers who had large stocks on hand, which losses were in turn reflected sharply on the canning establishments, which, in the face of no demand for their products refused to make the usual contracts with the growers. To illustrate the importance of the canning industry, the National Canners' Association estimated that more than 5,000,000,000 cans of human food are preserved each year, requiring the employment of 500,000 workers in 4000 factories, representing a capital investment aggregating \$1,000,000,000. The export trade in canned products, due to the low money exchange, was practically demoralized in the early part of the year. Due to droughts abroad, which stimulated export demand, and devastating freezes in the United States, which stimulated home demand, this situation gradually improved during the summer season.

Of the important commercial vegetables, 346,823,000 bu. of white potatoes were produced in 1921, as compared with 403,296,000 in 1920; sweet potatoes 105,841,000 bu., as compared with 112,368,000; dry beans (six States) 9,332,000 bu., as compared with 9,075,000 bu.; onions 12,652,000 bu., as compared with 23,435,000; cabbage 606,274 tons, as compared with 1,029,662 tons; canned peas 8,207,000 cases, as compared with 12,317,000 in 1920. The total apple crop was 96,881,000 bu. as compared with 223,677,000 bu. in 1920. The commercial apple crop totaled 19,296,000 bbls., as compared with 37,239,000 bbls.; peaches 32,733,000 bu., as compared with 45,620,000 bu.; pears 10,705,000 bu., as compared with 16,805,000 bu.; and oranges 30,700,000 boxes, as compared with 29,700,000 boxes.

In fresh deciduous fruits alone, California shipped over 40,000 cars in 1921, the largest single

item being grapes, aggregating over 28,000 cars. In dried fruits California shipped 277,660 tons, a sharp decrease from previous shipments of 417,250 tons in 1919 and 330,370 tons in 1920. The pineapple pack of Hawaii approximated 5,500,000 cases, a decrease of 500,000 cases from that of the previous year. The California nut crops were below anticipated size, almonds approximating 6000 tons and walnuts 18,000 tons, and were quickly marketed through their respective organizations.

EXPORT AND IMPORT TRADE. Foreign trade in practically all kinds of fruit and vegetable products showed a marked decline during the fiscal year ended June 30, 1921, over that of the preceding period. The United States exported fruits to the value of \$65,338,504, vegetables \$24,899,302; nuts \$1,790,782, or a total of \$92,028,588 as compared with \$154,843,400 for the preceding fiscal year. Imports during the same period were fruits \$40,933,307, vegetables \$22,714,581, and nuts \$34,468,087, a total of \$98,115,975 as compared with \$171,343,048 for the preceding annual period. This sharp decline in values is due in part to decreases in quantity and in part to declines in unit values, the notable exception being raisins and dried grapes, the imports of which show an increase approximating 30,000,000 lbs. Exports of nursery stock during the period amounted to \$397,655, an increase of \$12,746 over 1920; imports of nursery stock \$5,142,912 as compared with \$3,841,161 in 1920.

Among the export items showing a marked variation from the preceding year were fresh apples; 2,665,101 bbls. were shipped in the year ended June 30, 1921, as compared with 1,050,598 bbls. in the preceding year. Over 2,000,000 of these were consigned to ports of the United Kingdom. The value of exported canned fruits decreased from \$41,232,970 to \$13,128,053 for the respective periods. All importations of nuts, including walnuts, almonds, and peanuts, showed marked decreases in total values. Bananas showed a moderate increase.

MARKETING. Of the many important problems confronting the fruit and vegetable growers, marketing received the greatest consideration during 1921. Under authority received at the National Fruit Marketing Conference held in Chicago April 5, the National Farm Bureau Federation appointed a committee of twenty-one representative fruit men to devise better methods of handling the nation's fruit crop. A notable marketing success of the year was the merchandizing of raisins in small inexpensive packets, by which plan the raisin growers of California were able to dispose of a large crop at very satisfactory prices. Another worthy example of organized effort was the continued success of the California Fruit Growers' Exchange, which successfully marketed a large crop of oranges and lemons despite the generally demoralized market situation. The California Cherry Growers' Association was organized during the year on a non-profit basis to assist members in marketing of this fruit. Plans for mutualizing the North American Fruit Exchange were announced in July as a progressive step in the merchandizing of fruit and vegetables.

In consequence of the prevailing high trans-continental freight rates the Board of Directors of the California Fruit Growers' Exchange officially

indorsed the organization of a producers' steamship company for the transportation of citrus fruits from Los Angeles to Atlantic coast ports. Successful steamer shipments were made during the year of northwestern boxed apples to Great Britain and Atlantic ports of the United States via the Panama Canal.

REGULATORY ACTS. The activities of the Federal Horticultural Board were further extended during the year to afford protection to the citrus fruit industry of the country by preventing the entrance of the citrus black fly. A quarantine was promulgated to become effective April 1, 1921, whereby the entry of fruit and vegetables from Cuba, the Bahamas, Jamaica, Canal Zone, Costa Rica, India, Philippine Islands, Ceylon, and Java was permitted only after conformance to certain regulations necessitating thorough freedom from leafage and other plant material likely to contain the black fly. The work of the Board in attempting to control two important date scales threatening the infant date growing industry of the Southwest indicated the possibility of eradicating at least one and perhaps both of the pests provided sufficient moneys are appropriated to conduct operations on a thorough basis. The canker disease of citrus fruit was officially reported as occurring in Australia, a fact which will likely lead to the extension of the quarantine promulgated June 27, 1917.

Certain changes were made during the year to Quarantine No. 37, which concerns the importation of foreign plants and plant products for propagation, whereby all products admitted under Regulation No. 2 must be free from sand, soil, or earth. Under Regulation No. 7, inspection is now required at the time of packing of all nursery stock, and the accompanying certificate must cover washing and removal of soil. An interesting result of Quarantine No. 37 was the stimulus imparted to American nurserymen to propagate evergreens and other plants affected by the Act. Conservative plant dealers prophesy that there will soon be an oversupply of the evergreens, followed by a depressed market.

EXPERIMENTAL WORK. The trend of horticultural research during the past year has been toward the solution of fundamental problems which for years have beset investigators. Notable among recent investigations is that of the Wisconsin Experiment Station in studying the relationship between spur growth and spur performance in the apple. It was found that in the Wealthy and some other varieties under certain conditions spurs of certain length showed the highest percentage of fruit-bud differentiation and that both longer and shorter spurs showed lower percentages. These results were substantiated by work conducted at the Missouri Experiment Station in an attempt to determine the location in the tree of the factors influencing fruit-bud differentiation, in which it was found that, although there is a marked association between length and performance in apple spurs, the other parts of the tree, nevertheless, exert a considerable influence.

The work of the Oregon Station on the bearing of internal chemical factors on fruit-bud formation, in which it was suggested that a proper balance between the carbohydrate and nitrogen content is necessary for the proper development of the tree and its fruiting function, has served to place many

perplexing nutrition problems in a new light, rendering their ultimate solution highly probable.

Pruning investigations with apple reported from New York (Cornell), Massachusetts, New Hampshire, and Ontario Agricultural Experiment Stations gave further evidence that heavy pruning inhibits the growth of young trees and delays fruiting. Similar studies with the olive in California led to the same conclusions. In the light of this new knowledge, pruning practices with fruit-trees are being generally modified.

The work of the East Malling Research Station, Kent, England, with fruit stocks, a report upon which appeared during the year, contributed much to the solution of a puzzling problem—that of obtaining reliable stocks. A practical method of multiplying stocks by layering was described, the use of which practice will enable the nurseryman to rapidly increase desirable stocks and thus do away with the disappointing results which have obtained in the past from the use of mixed types.

The Massachusetts Experiment Station has developed a method of identifying varieties of apples by variations in the leaves which, if thoroughly practical in its application, will prevent the substitution of inferior varieties.

Studies of the comparative value of dusting versus spraying were conducted in many sections of North America, leading to variable conclusions as to the value of dusting. It would seem from the results obtained at the New Jersey Experiment Stations that the success or failure of dusting is closely correlated with the amount and intensity of rainfall.

PROMISING NEW FRUITS AND PLANTS. The Latham red raspberry, originated by the Minnesota Fruit Breeding Station and for a long period known under the name of Minnesota No. 4, received favorable comment during the year on account of its extreme hardiness, combined with good market qualities. The Melba apple, a seedling of McIntosh developed at the Central Experimental Farm, Ottawa, the Oka muskmelon from the Trappist monastery, Oka, Quebec, and the Cortland apple from the New York (Geneva) Experiment Station are recent northern introductions received with favor during the year. A large importation of offshoots of the Saidu date received in late 1920 are to be propagated under strict quarantine regulations and later disseminated among date growers at nominal cost.

In the spring of 1921 a shipment of 1400 offshoots of the Deglet Noor date arrived in the United States. This is a most valuable commercial variety in Northern Africa, and is believed to be adapted to the hot dry valleys of the Southwest. To further insure the caprifig supply, the Department of Agriculture formulated plans to establish plantations in the bay regions near San Francisco, from which to supply the fig insect (*Blastophaga*), when killed out in more exposed areas. A successful method of propagating the Thomasville citrangequat, a hybrid citrus fruit desirable as a stock for the Satsuma orange on account of its total immunity to citrus canker, was perfected in February, 1921, whereby this new stock may be propagated rapidly in any desired quantity. Small twig cuttings about 6 in. in length with terminal leaves attached rooted readily in the greenhouse under the stimulus of bottom heat and relatively high humidity.

The Monukka grape, introduced into California by the U. S. Department of Agriculture, showed merit both as a raisin and early shipping fresh fruit variety. Panariti and Ohanes are two shipping grapes now grown in sufficient quantity to emphasize their future importance to the California grape industry. Coates 1418 prune, originating near Saratoga, Calif., as a bud mutation of Prune d'Agen, promises to add to the value of the prune-producing industry on account of its greater size and yield.

MISCELLANEOUS. Prohibition continued to exert a remarkable stimulating influence on the grape-growing industry throughout the entire United States. The president of the California Grape Growers' Exchange stated that in a brief three years' period the average price per ton had risen from a range of \$10 to \$20 to that of \$75 to \$100. A 20-acre vineyard of Emperor and Thompson varieties near Exeter, Calif., was reported to have sold for \$1750 per acre. An experimental cold storage shipment of grapes from Chile to the United States was reported to have reached its destination in excellent condition. Argentina cherries reached the United States in late December, in time to grace the Christmas table of President Harding and others. The first solid carload of fresh figs from Fresno, Calif., was shipped to Chicago and New York in June in the expectation of creating a market for this product. A total of 923 cars of fresh tomatoes valued at approximately \$600,000, were shipped into the United States from the State of Sinaloa, Mexico, in the spring of 1921.

NECROLOGY. E. J. Glasson, specialist in horticulture and forestry on the Experiment Station *Record* for a long period of years, died Feb. 18, 1921. C. G. Patten of Charles City, Iowa, famous as the originator of Patten Greening apple and other hardy fruits for the North Central States, died November 28.

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HOSKINS, WILLIAM HORACE. Veterinarian, died in New York City, August 10. At the time of his death he was dean of the New York State Veterinary College. He was born at Rockdale, Pa., July 23, 1860, and graduated at the American Veterinary College in New York in 1881. He was professor of the various departments of veterinary science in the University of Pennsylvania until

1917, and he was successively president of the American Veterinary Medical Association and the Pennsylvania State Veterinary Medical Association. He contributed a large number of articles to the scientific press on veterinary subjects, and he was the editor-in-chief of the journal of *Comparative Medicine and Veterinary Archives*.

HOUSE, ÉMILE. See NECROLOGY.

HOUSING. The housing shortage, in all countries aggravated, if not brought on, by the suspension of building during the war followed by the post-war failure to resume operations on a normal scale owing to the prohibitive costs of construction, continued to be severely felt throughout the world. According to all estimates appearing in *The American Contractor*, based on the building permit statistics for 14 large cities, the United States at the beginning of 1921 faced an accumulated deficit amounting to about 147 per cent of the normal annual building programme, or rather the United States faced a demand equal to the normal output of $2\frac{1}{2}$ years. New York City's needs as revealed in a careful survey made by Health Commissioner Royal S. Copeland, called for the construction of living accommodations for about 100,000 families, exclusive of the normal growth of the city amounting to about 30,000 families annually. The same condition extended throughout the country amounting to a shortage of from a million and a half to two million homes and involving some 4,000,000 people. But the figures for contracts let during 1921 as compared with the preceding five years did not begin to meet the situation. Building materials and labor showed reductions, but the fact that normal building had not been resumed would indicate that the public did not believe that costs had yet reached rock bottom.

Various legislative attempts to stimulate building, as the Tax Exemption laws of New York and New Jersey (see ARCHITECTURE), did meet with success, and there was everything to recommend attempts to facilitate the financing of building operations such as the establishment of coöperative loan banks. But the Massachusetts Special Commission on the Necessaries of Life in its report of January, 1921, seemed to give the kernel of the situation. Increased building will take place, it says, "When rents are sufficiently high to attract investors." Rents will come down after building has sufficiently increased. But in the meantime, "if rents are kept unduly low by law, the supply of dwellings will not increase." In this connection definitions of a reasonable rent are worth considering. In August the Appellate Term of the Supreme Court, meeting at Brooklyn, ruled a reasonable rent to be a return of 10 per cent on the present market value of the property. A booklet on the subject prepared by the American Trust Company of New York declares that a reasonable rent should yield 11.8 per cent net income on fair valuation of real estate. Henry R. Brigham, formerly counsel for the United States Housing Corporation, put the necessary net return at 6 per cent of the valuation of the property, or a gross rental return of from 12-13 per cent. He also maintained that the radical rent legislation enacted by New York in 1920 caused a decrease in house building. Whether or not he was right, the National Industrial Conference Board reported an actual decline of 1 per cent for

rents in many communities, and a check in the contemplated rise of rents in other cities.

The Senate Committee on Reconstruction and Production, commonly known as the Older committee, authorized in April, 1920, to inquire into the building situation, reported in March, 1921. Of the ten recommendations contained in the document those dealing directly with housing are: Two bills concerned with the gathering of data on construction methods, costs, and designs, and the regular publication thereof; two bills concerned with supplying through national and home loan banks long-term money for house building; two bills concerned with tax exemption on real estate profits and loans. Other contemplated legislation is that of California, whereby workmen will be assisted in the building and ownership of their own homes; that of Illinois for a State Land Commission empowered to fix rents; and that of New York, tending to stimulate house construction.

Court convictions, accompanied by prison sentence, during the year include that of Robert Brindell, long head of the Building Trades Council, in New York, and in November those of four business men prominent in the so-called Tile Trust. All convictions were a result of the investigations of the Lockwood Committee.

Coöperative efforts towards the solution of the housing problem were especially successful in Brooklyn, where a small group of Finns joined together, raised \$8000 of the necessary \$45,000, borrowed the remainder and built a 16-family apartment house which they were occupying at the close of the year at a rental of approximately \$25.00 instead of \$75.00 dollars a month.

Chambers of Commerce throughout the country concerned themselves with housing. The report of the Civic Development Department on this subject shows them to be concerned more with the permanent problems than with meeting an acute shortage. They submitted three plans for local inquiry and study: 1. A financing corporation organized to loan to local builders. 2. The erection of houses by the local industries for their employees. 3. Community housing corporation.

The National Housing Association publishes the quarterly magazine, *Housing Betterment*, which gives news of the developments in this field throughout the world. The headquarters of the Association are at 105 E. 22d Street, New York City, and the secretary is Lawrence Veiller. *The Monthly Labor Review*, issued by the United States Department of Labor, also contains figures and reports on the subject.

GREAT BRITAIN. The end of 1920 saw England facing a shortage of from 500,000 to 800,000 dwellings; 60,000 of these had been begun and only 12,000 completed under the housing programme in effect during that year. In addition to this real shortage there was a large number of inhabited houses which had been repeatedly condemned as "unfit for human habitation" and incapable of being rendered fit. The lowest total for such houses in England and Wales was 180,000 and a proportionately higher number for Scotland. In view of these facts the virtual abandonment of the housing programme undertaken by the government in 1920 as announced on July 14, 1921, by Sir A. Mond, the recently appointed minister of health, came as a great disappointment. The new policy of the government in regard to housing allowed for the subsidence of 198,000 houses at a

cost of £10,005,000, and for the improvement of slum areas to the extent of £200,000. The decision to cut down the housing programme was due to a growing feeling against the volume of government expenditures.

Were it not for the success of the Building Guilds in England during the year the outlook seemed unrelievedly black. These 60 local guilds of building workers (organized as self-governing bodies conducted for the public benefit, insuring to each member a fair remuneration, but eliminating profits) were able to supply dwellings of standard material and superior workmanship at a cost lower than that of private contractors. On July 23, 1921, representatives of the various local committees met and formed a national body, which, with the decrease in government contracts, undertook private building contracts in the hope of a like success.

The Scottish Housing and Town Planning Congress held in Edinburgh in April enjoined the Scottish members of Parliament to carry out their pledges to relieve the housing shortage.

NEW ZEALAND. The parliament had previously appropriated \$3,742,900 for the building of working men's homes during 1921.

AUSTRIA. With the cost of building estimated to be eighty times what it was before the war, conditions, in the large cities particularly, continue to be intolerable. Vienna plans to create a loan fund for the promotion of building, by means of taxation.

CZECHO-SLOVAKIA. With conditions still such that in Prague many thousands were without a place to live in, the government in February, 1921, added a more important housing law than that of 1920. Under the new law: 1, Land can be expropriated for building purposes, under certain conditions; 2, specially constituted courts of wage arbitration are created for the settlement of builders disputes; 3, a board is established to fix the price of building materials; 4, the state coöperates with coöperative building associations constructing dwellings for officials and their families, allowing a credit to the extent of 250,000,000 crowns. Other encouragements to building activity are a material decrease in taxation and a 60 to 80 per cent guarantee of credit. In fact the housing shortage was so severe, owing to war and post-war conditions, coupled with the new influx of inhabitants to the large towns, that in some special cases state support equaled 90 per cent of the total outlay and the buildings were freed from taxes for fifty years.

FRANCE. Restoration continued to be the main problem. By February, 1921, 2000 coöperative societies of reconstruction were in operation, all of which were receiving assistance from the government in one form or another. In Paris the authorities in November had 978 workmen's dwellings under construction and were preparing plans for more; the city had made grants for this purpose amounting to \$9,650,000.

GERMANY. With 1,000,000 dwellings desperately needed and conditions unfavorable to building, the Housing Commission requisitioned all unoccupied dwellings. No family might have more than one house, and the general limitation was a room per person with kitchen. In February a national law was passed requiring all the states to spend at least thirty marks per inhabitant on home construction during 1921 and 1922. To reim-

burse the states a tax, payable over a period of twenty years, was laid on all houses built before 1918.

HOLLAND. The demand for houses for workers and the general public obliged Holland to consent, for the first time in its history, to the erection of permanent wooden houses.

ITALY. Drastic rent restriction laws, effective until July, 1922, but not applying to houses built within a certain period, were enacted by the nation in a further attempt to cope with the acute conditions.

JAPAN. Here as elsewhere the housing famine was acute. According to the Tokyo press, salaried men and laborers alike must pay one-third to one-half of their income for rent.

NORWAY. The Norwegian Technical University, with the aid of governmental and municipal grants, was conducting experiments to determine the relative merits of the common types of house construction. The two points, cheapness in erection, and economy in heating, were especially investigated. The results showed a frame house with sheet panel and asphalt pasteboard on each side, intermediate space filled with dry sawdust, to be the most satisfactory in these respects. The full details of this interesting experiment were to appear in book form.

PERU. According to the Bulletin of the Pan-American Union for February, the President of Peru provided for a bond issue amounting to \$1,459,950, the proceeds of which were to be used for the building of workingmen's dwellings in Lima and Callao.

URUGUAY. On June 20, 1921, a law concerning the rents of dwellings in the towns and cities of Uruguay was passed whereby the rent rate of December, 1919, became the legal maximum rate for a period of three years. Revisions in favor of landlord or tenant might be obtained by an appeal to the rent commission of the locality. The law also contained certain tax exemption provisions for new buildings begun and completed during its three-year term of operation.

For additional information, see ARCHITECTURE, and BUILDING.

HOWARD, ROBERT JARED BLISS. See NECROLOGY.

HOWARD, Sir HENRY. See NECROLOGY.

HOWLAND, THOMAS SMITH. Railway official, died, August 8. He was born at North Dartmouth, Mass., Feb. 13, 1844; and graduated at Lawrence Scientific School (Harvard) in 1868. He was an engineer in the service of the Burlington and Missouri River Railroad from 1868 to 1876; and after 1883, was secretary of the Chicago, Burlington, and Quincy Railroad, and after 1902 became its vice-president and treasurer.

HOYLE, ELI DUBOSE. Army official, died, July 27. He was born at Canton, Ga., Jan. 19, 1851; graduated at the United States Military Academy, 1875, and at the Artillery School, 1880. He was raised to the rank of major and chief ordnance officer, United States Volunteers, 1898; colonel in the regular army, March 3, 1911; brigadier-general, Sept. 24, 1913; and retired, Jan. 19, 1915. He was on the staff of General Wilson in the Porto Rican campaign in 1898 and again on his staff as chief ordnance officer and provost marshal; general of the Department of Matanzas, Cuba; president of the field artillery board, 1906-07; commanded the sixth regiment

of field artillery, 1908-13; and held commands in the Philippine Islands, 1913-14; after which he was in command of the eastern department of the United States with headquarters at Governor's Island until Jan. 15, 1918.

HUBERMANN, BRONISLAW. See *MUSIC, Artists, Instrumentalists*.

HUDSON, CHARLES TRACY. Civil War veteran, well known as the commander of the squad that captured Jefferson Davis, died in Brooklyn, N. Y., November 17. He was born at New Berlin, N. Y., in 1851. He served in the Civil War, attaining the rank of colonel. His personal records give an account of the capture of the President of the Confederacy, which occurred May 10, 1865, near Irwinsville, Ga. According to these accounts the information leading to the capture was supplied by a negro. Captain Hudson then procured a detail of 28 cavalry men and followed the trail to the tent in which Jefferson Davis and his wife were living. There follows a circumstantial narrative of the Confederate President's attempt to escape in his wife's clothes and the other incidents of the capture. For forty-five years preceding his death, Colonel Hudson was employed in the New York Custom House, retiring early in 1921.

HUDSON, EDMUND. Editor, died at Hartford, Conn., December 18. He was born in 1848 and from 1894 to 1913 was on the staff of the *Hartford Times*. He founded the *Army and Navy Register* and the *United States Government Advertiser*. He was engaged in newspaper work for nearly fifty years.

HUDSON RIVER BRIDGE. See *BRIDGES*.

HUGHES, Sir SAMUEL. Canadian army officer and cabinet official, died at Lindsay, Ont., August 24. He was born at Darlington, Ont., Jan. 8, 1853; and educated at Toronto University. After teaching at the Toronto Collegiate Institute he purchased and edited until 1897 the *Lindsay Warbler*. He entered the active militia of Canada in his boyhood, and became a prominent officer in various military associations. He was a constant advocate of Canadian military assistance to the empire in time of war, and personally offered to raise forces in Egypt, Sudan, the Afghan frontier war, and the Boer War. He devoted much of his life to promoting the cause of colonial military assistance to the empire, and visited Australia and New Zealand for this purpose. He served with distinction in the South African war, 1899-1900, and in the late war he was successful in raising Canadian contingents. He was six times elected to parliament, and was minister of militia and defense from 1911 to 1916. In politics he was a Conservative.

HULL, GEORGE HUNTINGTON. Iron merchant, died at Los Angeles, Calif., March 12. He was born at Dansville, N. Y., Nov. 22, 1840; received an academic education; and in 1868 became a partner in Addey Hull and company in Cincinnati. He was successively president of coal and freight car storage companies, and after 1888 was president of the American Pig Iron Storage Warrant Company. He was the author of a volume on industrial depressions (1911).

HUMBERT, GENERAL. French soldier died at Strasburg, November 10. At the time of his death he was military governor of that city, commandant of the territory of Alsace and a member of the higher council of war. He was

born at Gazeran, France, April 8, 1862, entered the military school of Saint-Cyr in 1881 and on leaving it joined the infantry. He served in the campaigns of Tongking and Madagascar and became captain in 1889, colonel in 1897, and brigadier-general, March 13, 1912. At the outbreak of the war (1914) he was in Morocco where he took part in the battles on August 28 and September 6-9, his division being cited in the order of the day for bravery and endurance. In October, 1914, he was called to the command of the 32nd group with the rank of general of division and was next placed at the head of the Lorraine forces in March, 1915; of the 3rd Army in July, 1915; and of the 7th Army in October, 1918. On returning to French territory in June, 1918, he was made inspector general and on Oct. 22, 1919, he became military governor of Strasburg. In the Battle of the Marne he showed extraordinary determination and energy. After a German brigade had captured Mondement (Sept. 9, 1914), it had to be retaken at any cost, and he delivered three attacks, finally succeeding in recapturing it. His work drew the attention of General Joffre and General Foch from this time on, and after service in the violently contested region of the Argonne, he was placed in command of the Army of the Lorraine near Nancy, but later was recalled to the Argonne at the head of the Third Army which he commanded until the end of the war. When Ludendorff broke through the British front, March 21, 1918, it was the army of Humbert that threw itself into the breach and checked the advance of the Germans, blocking their way to Paris.

HUMPERDINCK, ENGELBERT. German music composer, died at Neu-Strelitz, September 28. He is perhaps best known as the composer of *Hansel und Gretel*. He was born at Siegburg in the Rhine Provinces, Sept. 1, 1854, and received a thorough musical education. Early in his career he was associated with Richard Wagner, aiding him in preparing the productions of *Parsifal* in 1880-81. He began at that time the composition of *Hansel und Gretel* which when finished (1893) won an extraordinary success. The successful opera, *Die Königskinder*, was written in 1896. Both these operas were familiar to New York audiences. He visited the United States in 1905 and again in 1910. He resorted largely to folk themes which he treated in a masterly manner, and his compositions are marked by exquisite harmonization and orchestration. His other works include *Die sieben Geiseln* (1897); *Dornröschen* (1902); *Die Heirat wider Willen* (1905); *Die Marktelenderin* (1914); and incidental music, ballads, and choruses.

HUNEKER, JAMES GIBBONS. One of the best known American critics of his time, died in Brooklyn, N. Y., February 9. Down to a week before his death he was contributing articles on music criticism to the New York press. He was born in Philadelphia in 1860, the son of John Hunecker, a well-known organist. He devoted his youth to the study of music and spent several years in Paris studying the piano under Georges Mathias. On his return to New York he became a teacher of the piano at the National Conservatory. After ten years of this work he applied himself to musical and dramatic criticism, and was editor of these departments on the *Sun* and other New York papers. From 1891 to the time

of his death he wrote extensively in these fields as well as in that of literary criticism and soon won a reputation throughout the country, both by his articles and by his books. Among the best known of the latter may be mentioned *The Melomaniacs* (1902); *Iconoclasts* (1905); *Egoists* (1909); *Chopin, the Man and his Music* (1901); *The Pathos of Distance* (1913); and *Steeplejack* (1921), published shortly before his death, containing much matter of an autobiographical character.

HUNGARY. A state in eastern Europe formerly a kingdom which along with Austria made up the dual monarchy of Austria-Hungary. Capital, Budapest. The area of the old kingdom was 125,609 square miles and its population, Dec. 31, 1910, was 20,886,487. No definite figures for the area of the new Hungary were available on account of the unsettled state of the boundaries. The population of Budapest, January 1, was given at 184,616. Under the treaty signed at Neuilly, June 5, 1920, and ratified by the Hungarian government Nov. 13, 1920, the boundaries with Austria, Czechoslovakia, Jugo-Slavia and Roumania were indicated, though the last were not definitely fixed being left to the determination of a mixed commission. The boundaries roughly indicated would be as follows: The northern line beginning at Pressburg runs parallel with the Danube river to the Gran, thence north and northeast to Mogoșizet on the Theiss river, thence southwest to Nagylak on the Maros river, thence west to a point on the Drave river, thence along that river as far as Toka and from that point north to Pressburg again. The area of the new state has been roughly estimated at about one-third of the size of the former kingdom of Hungary. The boundaries were still indeterminate in 1921 but the important region of Burgenland was transformed to Austria in accordance with the treaty, the change being accompanied by disturbances which are noted below under *History*. Out of the former kingdom of Hungary the province of Croatia and Slavonia was absorbed in the new state of Jugo-Slavia; Slovakia was assigned to Czechoslovakia and Transylvania to Roumania. See **JUGO-SLAVIA, CZECHO-SLOVAKIA, and ROUMANIA**. The statistics for the new state were not available. Figures of education, production, commerce, etc., for the old kingdom will be found in preceding **YEAR BOOKS**. Education is compulsory for children between the ages of six and twelve. In the old kingdom in 1916-17 there were 15,224 elementary schools and the prevailing language was Hungarian in 12,503 of these. The number of pupils was 1,795,443. There are four universities, all maintained by the state, of which the largest is the University of Budapest with 4589 students in 1920-21. Other universities are situated at Colozsvár, Pressburg, and Debreczen.

PRODUCTION. The following information was supplied by the United States Bureau of Foreign and Domestic Commerce on the basis of reports in the local press: The treaty of Trianon divided the former territory of Hungary in such a manner that out of 325,411 square kilometres only 93,184 square kilometres were left, which, according to 1921 estimates, caused a loss of 87 per cent of Hungary's woods and 90 per cent of its mines. The following mines remained on Hungarian territory: (1) Previous to the partition of Hungary the deposits of the country contained 144,000,000 tons of iron ore, but only one large and

three small mining districts were left to new Hungary, and only the Telekes-Rudabanya, in the county of Borsod, was worth mentioning. The ore was of good quality, and was estimated at 16,000,000 tons. The production of the various other mines was reported to be of an inferior quality, and the total quantity amounted to little more than 1,000,000 tons. However, an iron-ore deposit was recently discovered near Eger (county of Heves), which contained 30 to 40 per cent iron metal. The ore produced could not be smelted by the Hungarian smelting works at present, and in the future only if electric smelting apparatus were furnished. (2) The situation concerning manganese and aluminum ores was reported to be of a most disappointing character. Before the partition Hungary possessed sufficient ores of this description to supply home consumption and ship large amounts to Germany, but at present nothing could be done and the future was not over-encouraging. Manganese ore of the first quality was discovered in 1915 at Urkut, county of Veszprim, and bauxite near Kadarto, in the same county. In 1921 the coal situation was reported to be better than that of the other minerals. Coal is practically all of the brown variety or lignite of which the best quality is found in the district of Pecs. There are a considerable number of brown coal and lignite mines. The coal deposits of Hungary were estimated at about 36 per cent of the deposits in the country before the partition under the treaty of Trianon.

COMMUNICATIONS. An important railway development of the year was the decision of the Hungarian State Railway Administration to electrify 870 miles of line. By such electrification it was estimated that the Hungarian State Railway would save 800,000 tons of coal yearly and reduce the consumption of coal to 1,500,000 tons. Engineers stated that if all the railways were electrified there would be no need for Hungary to import coal, its own deposits sufficing for ordinary needs. In the autumn an agreement was reached with the government of Roumania whereby direct railway communication was provided between the two countries, including the interchange of cars. Down to that time it had been necessary to unload freight at the borders. Traffic on the Danube is under the International Commission on the Danube, which was working toward the adjustment of river transportation to change conditions and aiming to prevent unnecessary delays for customs examinations, etc. Various plans for river and harbor improvement were under consideration.

GOVERNMENT. The republic was proclaimed Nov. 16, 1918, under the title of Hungarian People's Republic, and Count Michael Karolyi became provisional president, but his government fell from power March 22, 1919, and was for a short time succeeded by a Soviet government under Bela Kun which declared the dictatorship of the proletariat. This in turn was soon overthrown by the aid of the Roumanian army and on August 7, 1919, a new government was organized representing the parties of the Right. Elections were held in January and February, 1920, and the new Parliament chose a regent under the title of Protector of the Magyar Republic. The regent in 1921 was Admiral Nicholas von Horthy who was elected March 1, 1920. The government appointed after the cabinet crisis in April, 1921

(see below), was as follows: Prime Minister, Count Bethlen; Foreign Affairs, Count Banffy; Interior, Count Raday; Finance, M. Hegedus; Agriculture, M. Szabo; Commerce, M. Hegyesalmay; Public Instruction, Dr. Vass; Justice, M. Tomcsanyi; National Defense, General Belitska; Social Welfare, M. Bernolah; Food, M. Mayer.

HISTORY

RETURN OF THE EX-EMPEROR. The former Emperor of Austria-Hungary and King of Hungary made two attempts to regain the throne in the course of the year. On March 26, he entered the country where he was favored by the higher clergy and the leading aristocracy. The Regent, Admiral Horthy, refused to relinquish his authority unless ordered to do so by the National Assembly. The latter body on April 2 opposed the restoration of Charles, and advised him to depart immediately. He returned to Switzerland. The Allies protested against this attempt on the part of Charles, the Little Entente, comprising Czecho-Slovakia, Roumania, and Jugo-Slavia, being especially emphatic in its protest. The Prime Minister, meanwhile, had published a manifesto issued by Charles, saying that it was his conviction that peace could be restored only by his return to the throne. The government's course in publishing this manifesto and in introducing it by a reference to "his majesty, king Carl IV" gave offense and led to its overturn, April 10.

On October 22 it was learned that the ex-Emperor Charles after a flight from Switzerland by aeroplane, had landed with the former Empress Zita near Odenburg where troops awaited him, and thence had proceeded to Raab and summoned royalist sympathizers. It was reported that his reception among the people and troops was enthusiastic and that from the first, 12,000 of the latter were ready to accompany him in an advance on the capital. There were many conflicting rumors in respect to the ex-Emperor's success. Starting as he did in the Burgenland region, he rallied around him those nationalists who had opposed the cession of Burgenland to Austria. The Little Entente took measures to protect itself, calling three divisions of troops to the colors to reinforce the army on the Hungarian border. As to the Allies, there was no sign that they would relax their opposition to the return of a Hapsburg to the throne. A year and a half before, Feb. 2, 1920, they had formally declared that no member of the Hapsburg family would be allowed to reign in Hungary again. Nevertheless the ex-Emperor's course arose apparently from the belief that the Allies would acquiesce in his return, just as they had in the return of Constantine to Greece, which also was contrary to their expressed will. He thought that the Little Entente would offer no serious resistance because the Jugo-Slavs were fighting the Albanians, the Roumanians were absorbed in the protection of Bessarabia from the Russian Reds, and the Czecho-Slovaks could not rely upon the support of the Slovaks in the event of a campaign against Hungary. It was announced on October 24, that the forces of the ex-Emperor were defeated in the neighborhood of Torbagy with the loss of 200 killed and 100 wounded, and the ex-Emperor and ex-Empress were arrested by the Regent's troops near Komorn, about forty miles to the northwest of Budapest. According to

the accounts issued by the Hungarian government their forces numbered about 20,000 and those of Charles 10,000. The Hungarian government asked the former Emperor to abdicate (October 26) and to recognize the complete cessation of his rights. He was also ordered to surrender himself to the British authorities. Meanwhile the Little Entente was preparing to use force against the Hungarian government if Charles were not given up and if Hungary did not give guarantees for disarmament and for the payment to the Little Entente of the costs of military preparation. The Hungarian government made it plain that it would persist in the use of force to make the Emperor abdicate, if he did not do so of his own free will. A representative of the government declared that the great majority of Legitimists were in accord with the government in this respect. At the same time it was announced that the Council of Ambassadors had decided that Charles should be interned on board a British gunboat in the Danube until measures should be taken for his removal. He was banished to Funchal in the island of Madeira where he arrived on board a British cruiser, November 19. The proposal was then made to the British government that inasmuch as it had enforced the exile it should pay for the cost of the transfer of the former Emperor. The British government refused, and the Hungarian government thereupon requested Austria and the three other states which had been formed out of the former dual monarchy to contribute to the expenses of the journey.

The attempts of the ex-Emperor to regain the throne brought into prominence the compact agreed to between Italy and Jugo-Slavia in respect to the return of the Hapsburgs. This agreement was part of the treaty of Rapallo signed, Nov. 12, 1920, or rather it was a supplementary agreement signed at the same time. Its terms were not made public until 1921. The principal points in them was an agreement to adopt in common the necessary measures to prevent the restoration of the House of Hapsburg to the throne of Austria and Hungary. Both governments engaged to keep close watch on all activities that were directed against their mutual interests.

THE MONARCHISTS AND THE TREATY. The ruling class was divided into two groups, the Legitimists and the Free Electionists, the former demanding the restoration of the Hapsburgs, the latter declaring that the throne was vacant and should be filled by popular election. A bitter controversy between the two sides was going on in the latter part of the year, the Legitimists accusing the officers of Admiral Horthy of a series of atrocities including massacres, tortures, and the murder of many Jews, etc., while on the other hand these outrages were denied and the charges attributed to a Bolshevik campaign of slander. Some of the Conservative leaders joined in bringing charges of terrorism against the Horthy government apparently with the object of arousing sympathy with the Hapsburg king whom they said would put an end to this rule of terror and punish the guilty parties. The attempt of Charles IV, nicknamed Charles the Sudden, was generally regarded as a complete fiasco and was thought to have put an end forever to his pretensions to the throne. But the exclusion of him and his offspring would not necessarily make the return of a Hapsburg impossible for there were two

other representatives to the dynasty in the field. In the first place there was the Archduke Joseph who had tried to identify himself, first with the Communists, and second with the Liberal element. He had taken the oath of allegiance to Bela Kun in 1918. In August, 1919, when the Hungarian Soviet was overthrown, he tried to seize the regency but without success. The other was the Archduke Albrecht who was backed by one of the greatest fortunes in Central Europe and whose propaganda was financed with money borrowed from an American syndicate on the security of the family estate. He was supported by the violent Nationalists and Anti-Semites as represented by the society known as the Awakening Hungarians. The regent Admiral Horthy was supported by the younger army officers, the lower nobility, and many of the extreme Nationalists. The Legitimists found their strength in the old aristocracy and statesmen and in the generals of the army. After the overthrow of Charles, Horthy was believed by some to be aiming at the throne for himself, having issued a proclamation reminding the troops that they had taken their oath to him in person. Despite these party differences there was complete agreement among the ruling class in respect to the treaty. They all wanted to break down the treaty and regain for Hungary her former boundaries by reannexing the territories she had lost to Roumania, Jugo-Slavia, and Czecho-Slovakia. Both parties were willing to resort to war if necessary to this end and the government had accepted the treaty of Trianon in the hope that they would gain time to raise an army. The Legitimist Count Apponyi declared in public that the treaty having been extorted by force was not morally binding. The main difference between the two groups was that, while the Legitimists wanted to restore the Hungary of 1914, the followers of Horthy wanted to restore the ancient kingdom of Hungary. Militarism was charged against the Horthy government, whose policy had been one of the main causes of the formation of the Little Entente. The Roumanian Minister to the United States declared that the Hungarian situation was especially important in its relation to the Disarmament Conference. It was rumored that in the first six months of 1921, Hungary had at least 200,000 under arms. It was said that she tricked the Allies and that various means were resorted to for maintaining a military service under the disguise of gendarmes, students' organization, customs guards, etc.; and it was pointed out that when the trouble arose in Burgenland, large bodies of Hungarian troops were found immediately available.

BURGENLAND. The treaty of Trianon with Hungary provided that the band of territory on the west, known as the Burgenland should be united with Austria, and the transfer was to be effected in August, 1921. When the time came for the actual transfer, however, Hungarian bodies resisted the Austrian occupation and a crisis resulted, August-September, as noted below. It was not surprising that the Hungarians took offense at the transfer. In the first place this region was the most densely populated of Hungary, having an area of 4399 square kilometres with a population of 346,000. In the second place it was one of the richest and most ancient of the Hungarian provinces. Finally, the sentimental element was strong, for the Hungarians were angry at the

thought that she should suffer dismemberment for the sake of Austria who had been the cause of the war and on whose side Hungary had fought. To be sure the majority of the population was of German origin, but there were mingled with it about 50,000 Magyars and as many Croats. The region has often been compared to Alsace-Lorraine in that it was more loyal to the country with which it had been incorporated than to the state with which the majority of the inhabitants were allied by race. The Burgenland was one of the staunchest supporters of the Hungarian kingdom. It was in the lead in the matter of education having only an illiteracy of 14 per cent and containing about 500 schools. From this part of Hungary had come several of her most distinguished men such as the musicians Haydn and Liszt and the statesman, Count Stephen Szechenyi. From the economic point of view it was the richest of the western counties in industries with the exception of the region of Budapest, about 30 per cent of the inhabitants being engaged in the various manufacturing establishments, of which the most important were sugar refineries, spinning mills, and saw mills. There were ten mines of coal and lignite and important quarries from which stone was obtained for the larger part of the public monuments in the capital. Commercially it was of great importance inasmuch as the port, Sopron, was a centre for the carrying trade of cattle and food-stuffs. Against the claim that it was necessary to Austria on account of the food supply it was pointed out that its agricultural resources were limited, being hardly sufficient for Hungarian consumption. The county of Vas received annually 30,000 quintals of wheat from Alföld and the county of Sopron, 67,000. The city of Sopron alone consumed 72,000. This was a fair example of the inadequate production and in respect to certain food products the output was still more insufficient. Of cereals, for example, the region supplied to Austria only 1.8 per cent of oats, 3.6 per cent of wheat, 2.6 per cent of barley, and 7.5 per cent of rye, all the rest coming from the centre of Hungary. Another aspect of the sentimental attachment of Hungary to the country was the fact that it had always been regarded as the outpost of Magyar civilization against the west and the rampart of Hungary against Germanism. In this region as in Alsace, the non-Germanic race had intrenched itself against German expansion. The whole region bristled with old castles and strongholds, dating from the Middle Ages, which had victoriously resisted the attacks of the Austrians. Among these castles was the famous Frakne belonging to the Esterhazy family since the 17th century, which had been kept in an extraordinary state of preservation and contained many artistic and historical relics, including the most famous collection of arms in the world. Another point of resemblance to Alsace was the fact that the majority of the population, though of German origin and language, were thoroughly anti-German in sentiment and had always identified themselves with the Magyar race in time of danger. Thus in the war of Hungarian independence in 1848, while other nationalities of Hungary made common cause with Austria, these inhabitants of western Hungary fought on Hungary's side. The transfer was the result largely of the efforts of English and American experts who believed that Austria's economic life depended

upon the possession of this province. The above account represents the view of the Hungarians and their French supporters in the press and it should be noted on the other side that the transfer conformed to the principle of racial unity which had been laid down as the foundation of the European settlement.

The press accounts of the crisis following the transfer of Burgenland to Austria may be summarized as follows: Austrian officials sent to take possession of the territory were attacked by Hungarian insurgents, August 29. In Hungary resistance was offered by two separate bands under the respective leadership of former prime minister Friedrich and other officials, and the other under the leadership of the "Awakening Hungarians," the second faction supporting Admiral Horthy—the Regent. The first of these were Legitimists and were intending to make use of the situation to bring back the former Emperor Charles. During the first attacks on the Austrians, however, both factions united. Austria appealed to the Allies for authority to send troops against the Hungarians, but this was refused. In spite of the support given to Austria by the Czecho-Slovak government, which addressed notes to the Allies on Austria's behalf on September 11, the Hungarian government denied official responsibility for the events in Burgenland, attributing them to the action of the former Prime Minister Friedrich. On September 12, the Czecho-Slovak government protested to the Council of Ambassadors at Paris against this violence in Burgenland on the part of the Hungarians. On September 25 the Council of Ambassadors sent an ultimatum to Hungary demanding withdrawal from the territory. There was fighting between the Austrians and Hungarians in the neighborhood of Vienna. Offers of the Czecho-Slovak and Jugo-Slav governments to restore order by force were rejected by the Allies owing to the protest of Italy who feared the results of such a union of the Slav Powers. The Italian government, however, undertook to mediate between the Hungarians and the Austrians, and this attempt was imitated by the Czecho-Slovak government, September 23. On October 4, the Hungarian government agreed to withdraw the rebels, but this promise was not fulfilled and it was reported that Hungarian bands still continued to exercise terrorism. There were many rumors of a sensational nature in circulation, including one to the effect that the Magyar operations were under the direction of an officer on the staff of General Ludendorff. An agreement between Austria and Hungary, however, was announced, October 13, whereby Hungary undertook to clear Burgenland of the disturbers by military force if necessary, and Austria accepted a plebiscite for Oedenburg, Rohans, and several neighboring districts in dispute on the understanding that if the results should favor Hungary, Austria would renounce her financial claims. The plebiscite in Oedenburg held toward the end of the year was favorable to Hungary. On December 30 the Hungarian police occupied the territory and at the end of the year the district was on the point of being formally turned over to Hungary by the military Allied commission. President Hainisch ratified the agreement signed at Venice in October in regard to the dispute between Hungary and Austria over Burgenland.

BARANYA. Another territorial clause of the

treaty of Trianon was to be executed in August, namely, the return to Hungary of the city of Baja and the county of Baranya which since 1918 had been occupied by the Jugo-Slavs. The Magyar inhabitants protested against this transfer and organized an independent government under Jugo-Slav protection saying that while they were eager to join a democratic Hungary they would rather remain under Jugo-Slavia's rule than to suffer from the White Terror of the present Hungarian government. Nevertheless Hungarian troops entered the territory, August 22, and many of the inhabitants fled to Jugo-Slavia.

CABINET CRISES. As noted above the Teleki ministry was overthrown as the result of its indecisive course on the first attempt of the former emperor to regain the throne in March, and was succeeded by a new ministry under Count Stephen Bethlen, April 14 (for personnel, see above under *Government*). The essential points of the new ministry's programme were: Condemnation of anti-Semitism; coöperation among all classes; government maintenance of law and order; democratic legislation; the prompt restoration of freedom of press and assembly; measures for the introduction of electoral reform. The Bethlen cabinet resigned, November 14, in consequence of the contest between the Regent and the Legitimists who wished to restore the Hapsburgs, but Bethlen was recalled by Admiral Horthy and named a new cabinet, December 4. News from Hungary at this time was confused and fragmentary on account of the censorship. It appeared, however, that great disorder prevailed on account of the terrorism of the armed bands in support of the Regent and the counter-attacks of the Legitimists.

TREATY WITH THE UNITED STATES. The separate peace treaty between the United States and Hungary was ratified by the National Assembly, December 12.

HUNTER, MASON. Scottish artist, died at Edinburgh, Scotland, February 1. He was educated at Edinburgh. He was an exhibitor at various international expositions, and also at the Pittsburg exposition, painting especially landscapes and sea scenes. Many of his subjects were taken from the west of Scotland which was his favorite painting ground.

HUTCHINS, JAMES CALHOUN. Lawyer, died, February 28. He was born at Chicago, Ill., Dec. 15, 1857; and graduated in law at the Northwestern University Law School of Chicago in 1879. He practiced in that city after 1880; and was the director of the Illinois Trust and Savings Bank.

HVIEZDOSLAV, PAUL ORSZAGH. See NECROLOGY.

HYDE, AMMI BRADFORD. Educator, died at Denver, Col., March 23. He was born at Oxford, N. Y., March 13, 1824; graduated at Wesleyan University, Conn., in 1846; and was ordained to the Methodist Episcopal ministry in 1850. He was professor of Greek, English, and Hebrew at Allegheny College for twenty years, beginning in 1864, and after 1909 was professor of philology at the University of Denver, Col. He edited the *Rocky Mountain Christian Advocate* from 1888 to 1890; and was the author of the *History of Methodism* (1890); and, besides, contributed regularly for many years to the Methodist publications.

HYNDMAN, HENRY MAYERS. British socialist leader and writer, died in London, November 22. He was born at London, March 7, 1842; and educated at Trinity College, Cambridge. He was correspondent for the *Pall Mall Gazette* from 1863 to 1868; and made the acquaintance in Italy of Mazzini, Garibaldi, and other Italian patriarchs. During the next three years he visited Australia, New Zealand, and America; and during this period he wrote articles for a leading Australian newspaper on behalf of free education, contributing to the ultimate success of that cause. Between 1874 and 1880 he visited America several times. In 1881 he founded the Socialist Democratic Federation which became one of the leading Socialist bodies in Great Britain, and from that time on he was a conspicuous figure in the Socialist world and a constant agitator for social reform. He was a prominent member of various national and international congresses and of reform meet-

ings for numerous causes. He took an active part in establishing the new International at Paris in 1900. Among his many championships were those of Irish freedom, justice to India, the eight-hour law, and the cause of the Boers. Before the war he pronounced many warnings against the danger of German aggression, and during the war he helped to organize the national groups of Socialists against the anti-national elements. He was a member of the Food Consumers Council from 1918 to 1919. He was regarded by many as one of the ablest Socialist writers of his time. His books include: *Socialism and Slavery* (1888); *A Commune for London* (1888); *Commercial Crises of the 19th Century* (1892); *Historical Basis of Socialism* (1883); *Economics of Socialism* (1896); *The Record of an Adventurous Life* (1911); *Further Reminiscences* (1912); *The Future of Democracy* (1915); *The Awakening of Asia* (1919); *Clemenceau; the Man and His Time* (1919).

I

ICELAND. A Danish colony directly under the Danish crown, with an area of 40,456 square miles (according to other authorities, 39,709) and with a population estimated in 1919 at 92,818. In 1919 the total hay crop was about 2,600,000 cwt.; the potato crop, 66,000 cwt.; turnips, 18,000 cwt. Live stock in the spring of 1919 were as follows: Horses, 51,500; cattle, 25,600; sheep, 580,000. The commerce in 1918 was as follows: Imports, 41,027,701 kronur; exports, 36,920,200 kronur. The greatest share of the trade was with Great Britain, the next was with the United States and the next with Denmark. The budget for 1921 was as follows: Revenue, 5,182,300 kronur; expenditure, 4,759,204 kronur. Under the charter of May 18, 1920, the executive power is in the king who acts through a responsible ministry, and legislative power in the king and parliament called the Althing, which consists of two houses, the Upper and Lower. The president of the council in 1921 was Jon Magnusson. There were reports of Bolshevik disturbances toward the close of the year when a prominent Bolshevik came into conflict with the police authorities at Reykjavic, but the Bolshevik movement was said to be of little importance outside that locality.

ICELANDIC LANGUAGE. See **PHILOLOGY**, **MODERN**.

IDAHO. POPULATION. According to the report of the census of 1920, there were 431,866 residents in the State, Jan. 1, 1920, as compared with 325,594 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	47,000	1,598,000	\$ 799,000
	1920	45,000	1,620,000	1,620,000
Oats.....	1921	180,000	7,740,000	2,477,000
	1920	185,000	7,080,000	4,780,000
Barley.....	1921	87,000	2,784,000	1,808,000
	1920	92,000	3,220,000	2,415,000
Wheat.....	1921	1,123,000	27,079,000	19,497,000
	1920	1,100,000	24,600,000	30,750,000
Clover seed.....	1921	18,000	81,000	790,000
	1920	16,000	88,000	990,000
Hay.....	1921	1,160,000	13,180,000	20,875,000
	1920	1,175,000	12,985,000	37,058,000
Potatoes.....	1921	57,000	10,545,000	8,120,000
	1920	45,000	8,100,000	5,508,000

¹ Tons.

IRRIGATION AND DRAINAGE. The table below presents the statistics of irrigation for the State of Idaho, collected at the census of 1920. Statistics of acreage irrigated, of acreage, yield, and value of crops grown on irrigated land, and of cost of operation and maintenance relate to the year 1919; other items relate to the year 1920.

The summary of drainage conditions in 1920 on page 335 was issued by the United States Bureau of the Census:

The total works completed by drainage enterprises to Dec. 31, 1919, comprised 274.5 miles of open ditches, 1.8 miles of tile drains, and 9.5 miles of accessory levees; the additional lengths under construction were 14.7 miles of open ditches and 1.8 miles of tile drains. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the drainage enterprises, nor the works of flood protection or levee districts that had not undertaken the construction of ditches or tile drains.

Item	Census of—		Increase ¹	
	1920	1910	Amount	Per cent
Number of all farms.....	42,108	30,807	11,299	36.7
Approximate land area of the state..... acres..	53,346,580	53,346,580	.....	.....
All land in farms..... acres..	8,375,878	5,283,004	3,092,269	58.5
Improved land in farms..... acres..	4,511,680	2,778,740	1,732,940	62.4
Number of farms irrigated.....	25,283	16,489	8,844	53.8
Area irrigated..... acres..	2,488,806	1,430,848	1,057,958	73.9
Area enterprises were capable of irrigating..... acres..	3,092,810	2,388,959	703,851	29.5
Area included in enterprises..... acres..	3,780,048	3,549,573	230,475	6.5
Per cent irrigated:				
Number of all farms.....	60.0	53.4	6.6	.....
Approximate land area of state.....	4.7	2.7	2.0	.....
Land in farms.....	29.7	27.1	2.6	.....
Improved land in farms.....	55.2	51.5	3.7	.....
Excess of area enterprises were capable of irrigating over area irrigated..... acres..	604,004	958,111	—354,107	—37.0
Excess of area included in enterprises over area irrigated..... acres..	1,291,242	2,118,725	—827,483	—39.1
Area of irrigated land reported as available for settlement..... acres..	118,334	(²)	.....	.....
Capital invested.....	\$91,501,009	\$40,977,688	\$50,523,321	128.3
Average per acre enterprises were capable of irrigating.....	\$29.59	\$17.15	\$12.44	72.5
Estimated final cost of existing enterprises.....	\$97,019,717	\$58,451,106	\$38,568,611	66.0
Average per acre included in enterprises.....	\$25.67	\$16.47	\$9.20	55.9
Average cost of operation and maintenance per acre.....	\$1.17	\$0.63	\$0.54	85.7

¹ A minus sign (—) denotes decrease.

² Not reported in 1910.

Item	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	42,106	100.0
Farms reporting land having drainage.....	1,167	2.8
Farms reporting land needing drainage.....	2,895	6.9
All land in farms.....	acres.. 8,375,873	100.0
Improved land in farms.....	acres.. 4,511,680	53.9
Farm land reported as provided with drainage.....	acres.. 64,648	0.8
Farm land reported as needing drainage.....	acres.. 199,874	2.4
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres.. 53,346,560	100.0
All land in operating drainage enterprises.....	acres.. 64,642	0.1
Improved land.....	acres.. 52,098	0.1
Timber and out-over land.....	acres.. 87	(1)
Other unimproved land.....	acres.. 12,457	(1)
Capital invested in and required for completion of operating enterprises.....	\$1,788,569	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	\$1,668,569	93.3
Additional capital required to complete these enterprises.....	\$120,000	6.7

¹ Less than one-tenth of 1 per cent.

There were four pumping districts in the State, all equipped with six centrifugal pumps. The principal crops grown upon the drained land in drainage enterprises were alfalfa, grain, and hay other than alfalfa.

MINERAL PRODUCTION. The value of the gold, silver, copper, and lead mined in Idaho in 1921, according to the estimate of the United States Geological Survey, Department of the Interior, was about \$15,208,000, a marked decrease from the value in 1920, which was \$31,170,176. As a result of the collapse of the metal market, several of the copper, lead, and zinc mines were closed. Only the high price of silver prevented the closing of the large mines of silver-lead ore. The mine output of gold in Idaho in 1921 was valued at about \$497,000, as compared with \$485,590 in 1920. The largest output of gold was made by the Gold Hill & Iowa property, at Quartsburg.

The mine output of silver decreased from 7,326,794 ounces in 1920 to about 5,720,000 ounces in 1921. The largest silver producers in the State were the Bunker Hill & Sullivan, at Kellogg, the Morning mine of the Federal Mining & Smelting Co., and the Hecla mine, at Burke. The mines in the Cœur d'Alene district produce about 4,800,000 ounces of silver, or about 84 per cent of the total for the State. The mine output of copper decreased from 2,538,396 pounds in 1920 to about 1,436,000 pounds in 1921. The value of the output decreased from \$467,065 to about \$181,000. The mine output of lead decreased from 249,609,976 pounds in 1920 to about 192,000,000 pounds in 1921. The average price of lead was about 4.6 cents a pound, and the value of the output decreased from \$19,968,798 to about \$8,832,000.

The Cœur d'Alene district alone produced about 183,000,000 pounds of lead.

No zinc ore was shipped from Idaho in 1921, though the output of recoverable zinc in 1920 was 27,932,326 pounds.

MANUFACTURES. The United States Bureau of the Census published during the year the final returns from the census of manufactures in 1919. There were in the State in 1920 only two cities having more than 10,000 inhabitants—Boise and Pocatello. These cities, with a combined population of 36,394, formed 8.4 per cent of the total population for Idaho in that year and reported 11.4 per cent of the value of the State's manufactured products in 1919. The increases in wages, cost

of materials, and the value of products, as presented in the following table, were chiefly due to the change in industrial conditions brought about by the World War, and therefore cannot be used to measure the growth of manufactures between the industrial censuses 1914 and 1919. However, a comparison of the number of persons engaged and the horsepower used in 1919 and 1914 shows a large increase in the manufacturing activities of the State. The addition of the Federal income tax since 1914 will account for the exceptional increase in "Rent and taxes."

	1919	1914
Number of establishments.....	922	696
Persons engaged.....	16,268	10,529
Proprietors and firm members.....	851	664
Salaried employees.....	1,500	946
Wage earners (average number).....	13,917	8,919
Primary horsepower.....	73,876	50,336
Capital.....	\$96,061,709	\$44,960,489
Salaries and wages.....	21,249,819	8,731,000
Salaries.....	2,701,547	1,240,288
Wages.....	18,548,272	7,490,712
Paid for contract work.....	1,342,453	562,085
Rent and taxes.....	2,034,470	548,166
Cost of materials.....	43,948,505	14,892,094
Value of products.....	80,510,749	28,453,797
Value added by manufacture.....	36,562,244	13,561,703

EDUCATION. Pupils in the public schools in 1921 numbered 141,966; teachers 4350, of whom 3610 were women. Salaries of teachers varied widely with the school districts, ranging from \$823 a year to about \$1600 a year.

LEGISLATION. Among the initiatory legislation of the 1921 session the following measures were prominent: A measure authorizing school districts to provide for the education of adult residents who are unable to read and write; creation of a Bureau of Budget and Taxation; cooperative marketing act providing for the incorporation of agricultural, non-profit cooperative associations; teachers' retirement fund, by which teachers after the requisite number of years in the public schools may draw a pension; constitutional amendments passed at the election in November, 1920, increased the number of supreme court judges from three to five; and also permitted the appeal of decisions from the public utility commission direct to the supreme court, without entering the district courts.

OFFICERS. Governor, D. W. Davis; Secretary of State, Robt. O. Jones; Attorney-General, Roy L. Black; Treasurer, D. F. Banks; Auditor, E. G. Gallett; Superintendent of Public Instruction, Ethel M. Redfield; Adjutant-General, L. V. Patch.

JUDICIARY. Supreme Court: Chief Justice, John D. Rice; Justices, Alfred Budge, R. N. Dunn, W. A. Lee, C. P. McCarthy.

IDAHO, UNIVERSITY OF. A State institution of the higher education at Moscow, Idaho; founded in 1889. There were 1135 students enrolled for the fall session of 1921, and 196 for the summer session. Of the students in the regular session 576 were in the College of Letters and Sciences; 178 in the College of Agriculture; and 126 in the College of Engineering. Other departments of the university were College of Law, Schools of Mines, Forestry, and Education; special courses and correspondence courses. The faculty numbered 120. The productive funds amounted to \$825,816. There were 48,000 bound volumes and 8500 pamphlets. President, Alfred H. Upham, Ph.D.

IDDINGS, LEWIS MORRIS. Diplomatic agent, died at Rome, Italy, December 26. He was born at Warren, Ohio, April 23, 1850; and graduated at the University of Michigan, and the Columbia University Law School. He was engaged in newspaper work for several years and was for two years city editor of the New York *Evening Post*. In 1897 he became secretary and chargé of the American legation at Rome, and in the following year became diplomatic agent there. He held that position until 1905, and then served as consul-general at Cairo until 1910. He was active in war work in Italy as a representative of the Red Cross during the war and was decorated by the king in 1917 for his war services.

IDE, HENRY CLAY. Public official, died at St. Johnsbury, Vt., June 13. He was born at Barnet, Vt., Sept. 18, 1844; and graduated at Dartmouth College, 1866. He was State's attorney of Vermont from 1876 to 1878; and a member of the Vermont senate from 1882 to 1885. In 1891 he was appointed commissioner to Samoa, and was chief justice of Samoa from 1893 to 1897, being jointly appointed by the governments of the United States, Germany, and England. After serving on the Taft Commission in the Philippines and later in the administration, he was acting-governor from 1905 to 1906, and governor, January, 1906. From 1909 to 1913 he was minister to Spain. He served as the director of several banks and corporations. He wrote: *Code of Procedure in Civil Actions, and Special Proceedings in the Philippine Islands* (1901); *The Land Registration Act* (1903); *The Internal Revenue Law of 1904 of the Philippine Islands*, and various articles in the magazines.

IHMSEN, MAXIMILIAN FREDERICK. Journalist, died at Los Angeles, Calif., May 4. He was born at Pittsburg, Pa., March 14, 1868. He received his education in German schools and at the high school of Pittsburg and the Pittsburg Catholic College. After working for a short time as clerk in the Pittsburg post-office, he became a reporter on the Pittsburg *Leader* in 1888 and in the following year on the Pittsburg *Post*. At the time of the Johnstown flood he was the first reporter to reach the dam whose bursting caused the disaster. He held important positions

on the New York *Herald, Journal*, and *American*, serving in various capacities, including that of political reporter, correspondent, city editor, and political editor, and afterwards became the publisher of the Los Angeles *Examiner*. He was a strong supporter of William Randolph Hearst, and active in the movement to nominate him for president in 1904. He also was manager of the Hearst campaign for mayor in 1905; and organized the Independence League in New York, becoming its chairman.

ILLINOIS. POPULATION. According to the report of the census of 1920, there were 6,485,280 residents in the State, Jan. 1, 1920, as compared with 5,638,591 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	8,999,000	305,966,000	\$116,267,000
	1920	9,079,000	314,133,000	185,338,000
Oats.....	1921	4,594,000	121,741,000	35,305,000
	1920	4,334,000	171,193,000	73,613,000
Barley.....	1921	173,000	4,550,000	2,093,000
	1920	182,000	5,533,000	4,537,000
Rye.....	1921	197,000	3,349,000	2,679,000
	1920	188,000	2,933,000	3,813,000
Broom corn.....	1921	16,000	1 4,400	550,000
	1920	20,000	1 5,000	875,000
Hay.....	1921	3,234,000	1 3,817,000	51,285,000
	1920	3,141,000	1 3,923,000	81,347,000
Potatoes.....	1921	121,000	6,413,000	8,978,000
	1920	122,000	7,930,000	11,498,000
Swt. potatoes.....	1921	9,000	990,000	891,000
	1920	9,000	873,000	1,179,000
Sor. syrup.....	1921	10,000	2 880,000	871,000
	1920	11,000	2 825,000	1,196,000
Clover seed.....	1921	143,000	200,000	2,010,000
	1920	196,000	333,000	3,646,000
Wheat.....	1921	2,811,000	45,234,000	45,234,000
	1920	2,990,000	45,492,000	73,242,000

¹ Tons.

² Gallons.

MANUFACTURES. The Bureau of the Census, issued a preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Illinois and the city of Chicago. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system.

The table on page 337 gives a summary for the State and for the city of Chicago for 1919 with corresponding figures for 1914.

FINANCE. Receipts for the fiscal year ending June 30, 1920, were \$60,883,288 and expenditures, \$54,341,562.

TRANSPORTATION. The latest figures available were supplied by the Illinois *Blue Book* of 1921-22 which supplied the following information:

According to the Illinois Public Utilities Commission's report for 1916, the total mileage of steam railroads owned in the State was 21,893, including double tracks and sidings, which was exceeded by no other State. Texas was said to have a greater effective mileage of such roads. Illinois was third among the States in electric railway mileage, which was 3512. The approximate value of all railways property was estimated in 1921 at \$1,438,000,000. The gross annual from all railway operation, in 1915, was \$250,-124,258.

EDUCATION. The population under 21 years of

	1919	Census 1914	Per cent of increase ¹
Number of establishments.....	18,594	18,388	1.1
Persons engaged in manufactures.....	805,008	617,927	30.3
Proprietors and firm members.....	15,282	15,854	-3.6
Salaried employees.....	136,497	95,130	43.5
Wage earners (average number).....	653,229	506,943	28.9
Primary horsepower.....	1,660,766	1,305,930	27.2
Capital.....	\$3,367,955,000	\$1,943,836,000	73.3
Services.....	1,075,917,000	469,388,000	129.2
Salaries.....	274,307,000	128,478,000	113.5
Wages.....	801,610,000	340,910,000	135.1
Materials.....	3,489,054,000	1,340,183,000	160.3
Value of products.....	5,426,652,000	2,247,323,000	141.5
Value added by manufacture (value of products less cost of materials).....	1,937,598,000	907,140,000	113.6

CHICAGO—POPULATION, 2,701,705

Number of establishments.....	10,538	10,115	4.2
Persons engaged in manufactures.....	502,303	387,319	29.7
Proprietors and firm members.....	8,182	8,184	(¹)
Salaried employees.....	90,064	65,425	37.7
Wage earners (average number).....	404,057	313,710	28.8
Primary horsepower.....	826,420	681,114	21.3
Capital.....	\$2,076,194,000	\$1,190,069,000	74.5
Services.....	696,724,000	304,032,000	129.2
Salaries.....	188,448,000	90,295,000	108.7
Wages.....	508,276,000	213,737,000	137.8
Materials.....	2,380,025,000	901,933,000	163.9
Value of products.....	3,658,740,000	1,483,498,000	146.6
Value added by manufacture (value of products less cost of materials).....	1,278,715,000	581,565,000	119.9

¹ A minus sign (—) denotes decrease.¹ Less than one-tenth of 1 per cent.

age according to the school census for 1920 was 2,585,273, of whom 1,303,211 were males. Total enrollment in the elementary public schools was 999,866; in the high schools, 127,694. Teachers numbered 36,599, at an average annual salary of \$1347 for men and \$1033 for women. On Jan. 1, 1921, the State teachers' pension and retirement fund law had been in operation for five and one-half years. Within that time more than 6500 teachers who were engaged in teaching or who had previously taught in the public schools of Illinois at the time the law went into operation, July 1, 1915, elected or qualified as contributors to the pension fund. Of this number, 1041 had retired; 949 on full annuity, \$400 per year, and 92 on disability, receiving annuity according to the number

of years of service rendered (with fifteen or more years of service), making a total of all retirements, 1041. Of this number, 62 had died.

CHARITIES AND CORRECTIONS. On the first day of March, 1921, there were 27,514 inmates in the institutions under the Department of Public Welfare. Of this number, 17,596 were classified as insane, among them being 290 World War veterans, 4979 prisoners in the penitentiaries, reformatories, and training schools, and 4939 in the other institutions of the State. Of that number, 2034 were feeble-minded, 341 epileptics, 390 deaf, 304 blind, 1764 in the soldiers' institutions, and 106 house patients in the Eye and Ear Infirmary. The following table gives the statistics for State institutions, March 1, 1921:

Institutions and divisions	Location	Year created	Population March 1, 1921		Officers and employees
			Inmates Present	Enrolled	
Hospitals for the insane—					
Elgin State Hospital.....	Elgin.....	1869	2,258	2,263	294
Kankakee State Hospital.....	Kankakee.....	1877	3,275	3,380	496
Jacksonville State Hospital.....	Jacksonville.....	1847	2,262	2,357	305
Anna State Hospital.....	Anna.....	1869	1,719	1,802	293
Watertown State Hospital.....	Watertown.....	1895	1,616	1,688	285
Peoria State Hospital.....	South Bartonville.....	1895	2,102	2,159	296
Chester State Hospital.....	Menard.....	1889	178	188	33
Chicago State Hospital.....	Dunning.....	1912	3,482	3,768	451
Alton State Hospital.....	Alton.....	1911	704	729	97
Total insane.....			17,596	118,334	2,550
Penitentiaries and reformatories—					
State Training School for Girls.....	Geneva.....	1893	402	1,109	94
St. Charles School for Boys.....	St. Charles.....	1901	813	1,890	117
Illinois State Penitentiary.....	Joliet.....	1827	1,655	3,360	123
Southern Illinois Penitentiary.....	Menard.....	1877	984	1,302	113
Illinois State Reformatory.....	Pontiac.....	1867	1,041	1,539	108
Illinois State Farm.....	Vandalia.....	1919	48	48	10
Women's Prison.....	Joliet.....	1889	36	57	11
Total penitentiaries and reformatory.....			4,979	9,305	576
Lincoln State School & Colony—Feeble-minded.....	Lincoln.....	1865	2,034	2,251	285
Dixon State Colony—Feeble-minded.....	Dixon.....	1919	.....	.....	.....
Dixon State Hospital—Epileptic.....	Dixon.....	1912	341	345	77
Illinois School for the Deaf.....	Jacksonville.....	1839	390	399	125
Illinois School for the Blind.....	Jacksonville.....	1849	222	222	79
Illinois Industrial Home for the Blind.....	Chicago.....	1898	82	86	18
Illinois Soldiers' & Sailors' Home.....	Quincy.....	1885	1,296	1,627	175
Soldiers' Widows' Home of Illinois.....	Wilmington.....	1895	101	104	29
Illinois Soldiers' Orphans' Home.....	Normal.....	1865	367	876	73
Illinois Charitable Eye & Ear Infirmary.....	Chicago.....	1865	106	125	75
Research and Educational Hospitals.....	Chicago.....	1919	.....	.....	1
Total other institutions.....			4,939	6,135	987

The Director of the Department of Public Welfare made the following report in respect to recent measures of improvement: "For years, the desperate cry of patients in our State hospitals has been 'Give us something to do.' The patients sat about the wards in idleness spending their time in worrying about their real and imaginary troubles. The State met this demand by the introduction of occupational therapy, with trained occupational therapists in charge, to teach the patients how to do light work, which is helpful both mentally and physically. Occupational centres have been organized, and together with the athletic exercises and outdoor employment on the farms and in the gardens, the system has proved a great success. Another factor in doing away with mechanical restraint is application of modern hydrotherapy. Acute mania cases have been restored to health by the use of continuous baths and the wet pack, and patients who have not slept for days before coming to the hospitals, have had their sleep restored and relieved by this treatment. The slogan in our State hospitals is reeducation of inmates, and this has met with wonderful success. A feature in the treatment is habit training. Those with habits no better than a baby's have been taught to look after themselves, and raving maniacs have been turned into quiet patients, and in this manner the whole service has been greatly improved. The splendid record made by the hospitals for the insane has been paralleled by the showing of other charitable institutions. At the Lincoln State School and Colony, a great showing has been made, particularly in the method of classifying the children by psychologists, in employing inmates in the various departments of the institution and in directing their play activities. The brush factory operated by the feeble-minded turns out products each year amounting in value to thousands of dollars."

LEGISLATION. Among the laws passed by the fifty-second General Assembly in 1921, the following may be mentioned: Repeal of the 1919 zoning law and the substitution of a new act for it, which provided that before enacting zoning ordinances, the city should appoint a zoning commission to prepare the plan; an act authorizing cities, villages, and incorporated towns to provide for the creation of a plan commission, empowered to prepare and recommend the adoption of a comprehensive plan of public improvements, and of specific improvements, and to aid the officials to further the making of such improvements—hereafter no

subdivision presented for record may be recorded unless it conforms to the official plan; various other acts pertaining to cities and villages; bestowal of full equality with men in voting on women 21 years of age and over, and providing for their registration in the same manner as the male voters; an amendment in respect to landlords and tenants, providing that if a tenant holds over after the expiration of his term, the landlord can recover only actual damages; an act providing that compensation for veterans of the World War be paid out of the bond issue of \$55,000,000 subject to approval by the people.

OFFICERS. Governor, Len Small; Lieutenant-Governor Fred E. Sterling; Secretary of State, Louis L. Emmerson; Auditor, Andrew Russel; Treasurer, Edward E. Miller; Superintendent of Public Instruction, Francis J. Blair; Attorney-General, Edward J. Brundage.

JUDICIARY. Supreme Court, Warren M. Duncan; William M. Farmer; Frank K. Dunn; Floyd E. Thompson; Clyde E. Stone; James H. Cartwright; Ralph H. Wilkins.

ILLINOIS, UNIVERSITY OF. A co-educational State institution of the higher learning at Urbana, Ill.; founded in 1867. Its departments of medicine, dentistry, and pharmacy are situated at Chicago. The total enrollment for the university in the fall of 1921 was 9084 and for the summer session 1926. The total number of university officers was 1111, an increase of 207 over the fall of 1920. There were 503,297 bound volumes in the library. The total income for 1921-22 was placed at \$4,881,872. President, David Kinley, Ph.D., LL.D.

ILLITERACY. See EDUCATION IN THE UNITED STATES.

IMMIGRATION. The net immigration for the fiscal year ending June 30, 1921, was 805,228, as compared with 430,001 for the previous year—an increase of 375,227. The emigrant departures were 247,718, a decrease of 40,597 from the previous year. The permanent addition to our alien population was, therefore, 557,510. Nearly all the additional alien arrivals were at the port of New York, the total for all of the other ports (including the Canadian and Mexican borders) having been but 339,450, as compared with 301,102 during the preceding year. There was an actual decrease in the number of such arrivals across the land borders, accounted for on the southern border by more or less depressed industrial conditions which had a tendency to discourage immigration from Mexico, and on the northern by

NET INCREASE OF POPULATION BY ARRIVAL AND DEPARTURE OF ALIENS, FISCAL YEARS ENDED JUNE 30, 1908, TO 1921

	Admitted		Total	Emigrant	Departed		Total	Increase
	Immigrant	Non-immigrant			Immigrant	Non-immigrant		
1908.....	782,870	141,825	924,695	395,073	319,755	714,828	209,867	
1909.....	751,786	192,449	944,235	225,802	174,590	400,392	543,843	
1910.....	1,041,570	156,467	1,198,037	202,436	177,982	380,418	817,619	
1911.....	878,587	151,713	1,030,300	295,666	222,549	518,215	512,085	
1912.....	838,172	178,983	1,017,155	333,262	282,030	615,292	401,863	
1913.....	1,197,892	229,335	1,427,227	308,190	303,734	611,924	815,303	
1914.....	1,218,480	184,601	1,403,081	303,338	330,467	633,805	769,276	
1915.....	326,700	107,544	434,244	204,074	180,100	384,174	50,070	
1916.....	298,826	67,922	366,748	129,765	111,042	240,807	125,941	
1917.....	295,403	67,474	362,877	66,277	80,102	146,379	216,498	
1918.....	110,618	101,235	211,853	94,585	98,683	193,268	18,585	
1919.....	141,132	85,889	227,021	123,522	92,709	216,231	20,790	
1920.....	430,001	191,575	621,576	288,315	139,747	428,062	193,514	
1921.....	806,228	172,935	978,163	247,718	178,313	426,031	552,132	
Total.....	9,117,265	2,039,947	11,157,212	3,218,023	2,691,803	5,909,826	5,247,386	

the high rate of currency exchange, the material advances in railway and sleeping-car rates, economic conditions comparable to our own, and a wage scale not materially lower than that which prevails on this side of the line.

Aliens filing petitions for citizenship during the fiscal year numbered 198,530 and those declaring intention numbered 304,481, an increase of 4375 over the preceding year. Over one-fourth of the aliens admitted during the fiscal year were Italians (222,260). The Jews numbered 119,036. The table on page 338 shows net increase of population, 1908-21.

EFFECT OF ALIEN POPULATION. The following table shows to what extent the various foreign elements in the population were increased or decreased by immigration and emigration during the fiscal year:

of the crews and by avoiding the authorities on the land borders. There was a marked increase in the number of Chinese arrivals seeking the privilege of transit, which privilege was granted under bond to 17,907 of whom 8269 were admitted at San Francisco and 6677 at Montreal, the chief destinations in both cases being Mexico, Cuba, and South American countries. The policy announced by the Mexican government in 1921 of prohibition of further Chinese in transit to that country stopped the transit movement via United States ports and after that the majority of Chinese in transit went to Cuba. The original cause of this heavy travel in Chinese coolie laborers was the demand in war time for their services in the sugar industry. But, although that demand had fallen off, the transit movement during the fiscal year caused the above increase.

NET INCREASE OR DECREASE OF POPULATION BY ARRIVAL AND DEPARTURE OF ALIENS, FISCAL YEAR ENDED JUNE 30, 1921, BY RACES OR PEOPLES

Race or people	Immigrant	Admitted Non-immigrant	Total	Emigrant	Departed Non-immigrant	Total	Increase (+) or decrease (-)
African (black).....	9,873	5,112	14,985	1,807	3,122	4,929	+ 10,056
Armenian.....	10,212	360	10,572	605	168	773	+ 9,799
Bohemian and Moravian (Czech).....	1,748	145	1,888	564	136	700	+ 1,188
Bulgarian, Serbian, and Montenegrin.....	7,700	995	8,695	9,940	1,104	11,044	- 2,349
Chinese.....	4,017	18,974	22,991	5,253	19,455	24,708	- 1,717
Croatian and Slovenian.....	11,035	246	11,281	3,306	165	3,471	+ 7,810
Cuban.....	1,623	7,605	9,128	1,059	8,639	9,698	- 570
Dalmatian Bosnian, and Herzegovinian.....	930	50	980	909	215	1,124	- 144
Dutch and Flemish.....	12,813	4,064	16,877	2,405	5,264	7,669	+ 9,208
East Indian.....	353	108	461	137	71	208	+ 253
English.....	54,627	30,655	85,282	11,622	38,686	50,308	+ 34,974
Finnish.....	4,233	343	4,576	2,480	1,477	3,957	+ 619
French.....	24,122	7,203	31,325	3,836	6,855	10,691	+ 20,634
German.....	24,168	3,383	27,551	6,770	3,577	10,347	+ 17,154
Greek.....	31,828	1,407	33,235	13,470	2,001	15,471	+ 17,764
Hebrew.....	119,036	2,190	121,226	483	1,227	1,710	+ 120,516
Irish.....	39,056	5,045	44,101	2,535	3,786	6,321	+ 37,780
Italian (north).....	27,459	2,656	30,115	11,447	4,659	16,106	+ 14,009
Italian (south).....	195,037	19,620	214,657	37,032	11,035	48,067	+ 166,590
Japanese.....	7,531	6,743	14,274	4,352	11,193	15,545	- 1,271
Korean.....	61	24	85	33	62	96	- 10
Lithuanian.....	829	31	860	4,507	278	4,785	- 3,925
Magyar.....	9,377	351	9,728	12,457	773	13,230	- 3,502
Mexican.....	29,603	17,191	46,794	5,519	2,383	7,902	+ 38,892
Pacific Islander.....	13	13	26	1	40	41	- 15
Polish.....	21,146	4,616	25,762	42,207	2,594	44,801	- 19,039
Portuguese.....	18,856	764	19,620	5,144	2,026	7,170	+ 12,450
Roumanian.....	5,925	721	6,646	8,603	975	9,578	- 2,932
Russian.....	2,887	494	3,381	11,085	1,318	12,403	- 9,022
Ruthenian (Rusniak).....	958	157	1,115	465	18	483	+ 632
Scandinavian (Norwegians, Danes, and Swedes).....	25,812	9,565	35,377	6,944	11,605	18,549	+ 16,828
Scottish.....	24,649	6,579	31,228	2,027	4,571	6,598	+ 24,630
Slovak.....	35,047	822	35,869	17,525	1,441	19,066	+ 16,803
Spanish.....	27,448	7,035	34,483	4,961	18,532	23,493	+ 10,990
Spanish-American.....	3,325	4,048	7,373	1,536	5,157	6,693	+ 680
Syrian.....	5,105	723	5,828	1,599	654	2,253	+ 3,575
Turkish.....	353	30	383	713	129	842	- 459
Welsh.....	1,748	644	2,392	167	339	506	+ 1,886
West Indian (except Cuban).....	1,553	1,884	3,397	656	1,986	2,642	+ 755
Other peoples.....	3,237	429	3,666	1,457	597	2,054	+ 612
Total.....	805,228	172,935	978,163	247,718	178,313	426,031	+ 552,132
Admitted in and departed from Philippine Islands.....	10,652	7,129	17,781	1,724	14,455	16,179	+ 1,602

ORIENTAL IMMIGRATION. During the fiscal year, the Chinese immigrant aliens admitted numbered 4017 as compared with 2148 in the fiscal year 1920, an increase of 1869. There were besides, 404 Chinese who arrived at ports of entry but were deported after examination. The number of Chinese emigrants departing from the country was 5253, of whom the majority secured certificates entitling them to readmission. A considerable number of Chinese furthermore succeeded in entering the country by deserting from vessels on which they had shipped as members

The number of Japanese aliens admitted to the continent of the United States during the fiscal year 1921 was considerably less than in the preceding year, namely, 10,675 as compared with 12,868. On the other hand, there was a slight increase in the number admitted to Hawaii, namely 3599 as compared with 3306. The so-called "proxy brides,"—that is to say the women of Japanese race admitted to continental ports destined for husbands whom they had married under the proxy or picture system, continued for only a short time within the fiscal year. The

Japanese government had decreed Feb. 29, 1920, as the last day on which passports would be issued to such persons and Sept. 1, 1920, as the last day on which passports already issued would be considered valid. This put a stop to the entry of the proxy brides to the mainland ports of this country. The following tables show details in respect to Japanese and Chinese immigration during the fiscal years 1920 and 1921:

Spanish.....	94
Spanish-American.....	15
Syrian.....	33
Turkish.....	6
Welsh.....	7
West Indian.....	8
Other peoples.....	86

The Commissioner reported considerable difficulty in bringing about the deportation of aliens

JAPANESE ALIENS APPLIED FOR ADMISSION, ADMITTED, DEBARRED, DEPORTED, AND DEPARTED,
FISCAL YEARS ENDED JUNE 30, 1920 AND 1921

	1920		1921	
	Continental United States	Hawaii	Continental United States	Hawaii
Applications for admission.....	13,013	3,355	10,785	3,624
Admitted.....	12,868	3,306	10,675	3,599
Debarred from entry.....	145	49	110	25
Deported after entry.....	46	4	63	8
Departures.....	11,662	3,991	11,638	3,907

56 Koreans were admitted in Hawaii, and 66 departed therefrom.

29 Koreans were admitted in continental United States, and 29 departed therefrom.

SUMMARY OF CHINESE SEEKING ADMISSION TO THE UNITED STATES, FISCAL YEARS ENDED JUNE 30,
1920, AND 1921, BY CLASSES

Class alleged	1920			1921			Escaped
	Admitted	Debarred	Died	Admitted	Debarred	Died	
United States citizens.....	1,761	27	2	3,239	47	4	1
Wives of United States citizens.....	141	1	..	290	..	1	..
Returning laborers.....	320	2	..	568	6	..	1
Returning merchants.....	625	21	..	702	4	..	..
Other merchants.....	105	..	..	287	4	..	..
Members of merchants' families.....	644	47	..	1,316	38	3	..
Students.....	512	2	..	838	4	..	..
Travelers.....	131	..	..	110	..	..	..
Teachers.....	28	1	..	33	..	..	..
Officials.....	146	2	..	223	1	..	..
Miscellaneous.....	377	23	..	717	192	2	1
Granted the privilege of transit in bond across land territory of the United States.....	10,917	43	..	17,907	108	..	..
Total.....	15,607	168	2	26,230	404	10	3

DEPORTATIONS. The deportation of aliens under the immigration law was largely in excess of that for the preceding fiscal year. In the year ending June 30, 1921, 4517 were deported as compared with 2762 in the preceding fiscal year. The number deported by races is shown in the following table:

African (black).....	99
Armenian.....	8
Bohemian.....	17
Bulgarian.....	28
Chinese.....	341
Croatian and Slovenian.....	65
Cuban.....	3
Dalmatian.....	5
Dutch and Flemish.....	43
East Indian.....	19
English.....	389
Finnish.....	56
French.....	179
German.....	252
Greek.....	82
Hebrew.....	134
Irish.....	139
Italian (north).....	30
Italian (south).....	216
Japanese.....	71
Lithuanian.....	20
Magyar.....	32
Mexican.....	1,268
Poleish.....	138
Portuguese.....	46
Roumanian.....	16
Russian.....	280
Ruthenian.....	28
Scandinavian.....	93
Scotch.....	105
Slovak.....	16

of the anarchist and similar classes. Of these, the majority were of Russian nationality. It had been found impossible during the year 1920, after the sailing of the *Buford* (Dec. 21, 1919) to effect any deportations whatever to Russia, but arrangements were finally made for the sending of aliens destined to Russia by way of Latvia and about 350 were afterwards deported to Russia by this route, down to the time when the Russian government closed the borders to all persons deported from the United States (April, 1921). During the fiscal year 1921 the number of aliens arrested under the anarchist provisions of the immigration law and actually deported were 446. Many aliens subject to deportation could not be sent to their destination during the war and for a considerable period thereafter, owing to the lack of means of transport, and consequently accumulated to the number of about 3000, who were mostly insane and confined in the various public institutions of the States, but with the improved transport conditions in 1920 and 1921 these accumulations were in large part cleared off, and of those left in institutions the majority were Russians who could not be deported on account of the close of the Russian border as above noted.

RESTRICTION OF IMMIGRATION. As noted in the last YEAR BOOK, the flood of immigration during the last half of 1920 led to a demand for severe restrictive measures. An emergency measure

was passed by the House of Representatives on Dec. 13, 1920, by vote of 295 to 41. This provided for the temporary suspension of all immigration into the United States with the exception of certain exempt classes. Then Senate amended that measure by the introduction of a per centum limit feature and the compromise measure was passed, but did not receive the executive approval during the session of Congress. It was immediately introduced at the opening of the new Congress and became a law on May 19. The essential provisions of the act were as follows:

SEC. 2. (a) That the number of aliens of any nationality who may be admitted under the immigration laws to the United States in any fiscal year shall be limited to 3 per centum of the number of foreign-born persons of such nationality resident in the United States as determined by the United States census of 1910. This provision shall not apply to the following, and they shall not be counted in reckoning any of the percentage limits provided in this act: (1) Government officials, their families, attendants, servants, and employees; (2) aliens in continuous transit through the United States; (3) aliens lawfully admitted to the United States who later go in transit from one part of the United States to another through foreign contiguous territory; (4) aliens visiting the United States as tourists or temporarily for business or pleasure; (5) aliens from countries immigration from which is regulated in accordance with treaties or agreements relating solely to immigration; (6) aliens from the so-called Asiatic barred zone, as described in section 3 of the immigration act; (7) aliens who have resided continuously for at least one year immediately preceding the time of their admission to the United States in the Dominion of Canada, Newfoundland, the Republic of Cuba, the Republic of Mexico, countries of Central or South America, or adjacent islands; or (8) aliens under the age of eighteen who are children of citizens of the United States.

(b) For the purposes of this act nationality shall be determined by country of birth, treating as separate countries the colonies or dependencies for which separate enumeration was made in the United States census of 1910.

(c) The Secretary of State, the Secretary of Commerce, and the Secretary of Labor, jointly, shall, as soon as feasible after the enactment of this act, prepare a statement showing the number of persons of the various nationalities resident in the United States as determined by the United States census of 1910, which statement shall be the population basis for the purposes of this act. In case of changes in political boundaries in foreign countries occurring subsequent to 1910 and resulting (1) in the creation of new countries, the Governments of which are recognised by the United States, or (2) in the transfer of territory from one country to another, such transfer being recognised by the United States, such officials, jointly, shall estimate the number of persons resident in the United States in 1910 who were born within the area included in such new countries or in such territory so transferred, and revise the population basis as to each country involved in such change of political boundary. For the purpose of such revision and for the purposes of this act generally aliens born in the area included in any such new country shall be considered as having been born in such country, and aliens born in any territory so transferred shall be considered as having been born in the country to which such territory was transferred.

(d) When the maximum number of aliens of any nationality who may be admitted in any fiscal year under this act shall have been admitted all other aliens of such nationality, except as otherwise provided in this act, who may apply for admission during the same fiscal year shall be excluded: *Provided*, That the number of aliens of any nationality who may be admitted in any month shall not exceed 20 per centum of the total number of aliens of such nationality who are admissible in that fiscal year: *Provided further*, That aliens returning from a temporary visit abroad, aliens who are professional actors, artists, lecturers, singers, nurses, ministers of any religious denomination, professors for colleges or seminaries, aliens belonging to any recognised learned profession, or aliens employed as domestic servants, may, if otherwise admissible, be admitted notwithstanding the maximum number of aliens of the same nationality admissible in the same month or fiscal year, as the case may be, shall have entered the United States; but aliens of the classes included in this proviso who enter the United States before such maximum number shall have entered shall (unless excluded by subdivision (a) from being counted) be counted in reckoning the percentage limits provided in this act: *Provided further*, That in the enforcement of this act preference shall be given so far as possible to the wives, parents, brothers, sisters, children under eighteen years of age and fiancées (1) of citizens of the United States, (2) of aliens now in the United States who have applied for citizenship in the manner pro-

vided by law, or (3) of persons eligible to United States citizenship who served in the military or naval forces of the United States at any time between April 6, 1917, and November 11, 1918, both dates inclusive, and have been separated from such forces under honorable conditions.

The following account of the operation of the Act is based on a study published by the commissioner-General of Immigration. The 3 per cent quota applied to the European nations and to certain others, but many exceptions were admitted under the law in order to prevent hardship to individuals. The law did not apply to immigrants from the Asiatic countries, which were all covered by other immigration laws. Nor did it apply to aliens in transit or to aliens under eighteen years of age who are the children of American citizens. The countries outside of Europe to which it applied were Turkey and Asia with its prewar limits, Trans-Caucasia, Persia, Africa, Australasia, the Atlantic islands, and part of the Pacific islands. This included the very countries from which immigration had long been excessive, especially southern and eastern Europe and Asiatic Turkey, and in several of these countries there was a tendency to exceed the legal quota. But there was also a particular difficulty in the case of Spain, for in 1910 there were comparatively few persons of Spanish birth in the United States and Spain's quota was therefore very low, while economic conditions were of the kind to promote emigration from Spain as well as from other countries. The annual quota of immigrants allowed under the law was fixed at 355,825 and the maximum for any one month was 20 per cent of the total, or 71,163. The quotas for some of the countries were as follows: Austria, 7444; Belgium, 1557; Czecho-Slovakia, 14,269; Denmark, 5644; Finland, 3590; France, 5692; Germany, 68,039; Greece, 3286; Hungary, 5639; Italy, 42,021; Jugo-Slavia, 6405; Netherlands, 3602; Poland, 28,019; Norway, 12,116; Portugal, 2269; Roumania, 7414; Russia, 32,247; Sweden, 19,956; Switzerland, 3745; United Kingdom, 77,206; Armenia, 1588; Spain, 663. The excess over the quota owing to the exceptions above mentioned amounted to 11,741 between June 3, when the Act went into effect, and June 30, but many of these were admitted provisionally and on the understanding that they were to remain only until further investigation. For a period of about five and a half months, that is, down to November 23, 155,604 were admitted, an excess of 1284 over the quota. There was wide variation among the different countries, some of which had already exceeded their quotas for the year, but these countries were, for the most part, those for which the quotas were exceptionally low in comparison to their population. Of these countries, Turkey exceeded her annual quota by 41.8 per cent; Palestine by 255 per cent, and certain other parts of Asia by 437 per cent, the number of persons from these regions in the United States in 1910 having been very small. Spain exceeded her quota in four months by 9.5 per cent, and New Zealand's excess for the same period was 10 per cent. Toward the end of the year the only countries that had not sent at least 50 per cent of their quotas in southern and eastern Europe were Austria, Finland, and Russia. Immigration from Russia had, of course, been practically impossible and the depreciation of the Austrian currency had made it difficult for

any intending immigrants from Austria. In general, the southern and eastern countries of Europe showed a tendency to exceed their quota, while the northern and western nations, with the exception of Bulgaria and Luxemburg had not exceeded 50 per cent of the admissible total in the closing months of the year. From the United Kingdom, during the first four months under the new law, immigration had reached only 26.5 per cent of the quota; from Denmark 25.9; from Norway 18.7; from Sweden 18; from Germany 8. The German immigration was undoubtedly affected by the exchange situation, although in the autumn months it showed a steady increase, rising to 2569 in October. In 1913, the last year of normal immigration, the northern and western countries of Europe supplied only 14.91 per cent of the total immigration from Europe, while the southern and eastern countries supplied 84.88 per cent. Down to October first, under the new law the percentages were respectively 33.76 per cent and 95.96 per cent. At the close of the calendar year 1921 the Department of Labor estimated the number of immigrants for the fiscal year ending, June 30, 1922, at about 350,000, as a result of the operation of the restriction act.

IMPORTS. See articles on COUNTRIES.

INCOME TAX. See TAXATION.

INDEPENDENT METHODIST CHURCH.

See METHODISTS, WESLEYAN.

INDIA, BRITISH. The territory comprising the peninsula of Hindustan and regions to the north administered by the British sovereign as emperor of India through the viceroy or governor-general in council. In addition to regions directly governed by British officials it includes the Native States that are under the control of the British government. Capital, Delhi.

AREA AND POPULATION. Area, including Native States and states in political relations with the government, 1,802,629 square miles; population (1911) 315,156,396. The population according to preliminary figures of the census of 1921 was 319,075,132, of whom 164,056,191 were males, and 155,018,941 females.

EDUCATION. The number of persons with a knowledge of the English language according to the latest estimates was about 1,700,000. Educational institutions are classed as public or private according as they are or are not under the Department of Public Instruction. The following table from the *Statesman's Year Book* of 1921 gives the number of institutions and scholars in British India, including British Baluchistan, Ajmer-Merwara, and the civil and military station of Bangalore:

	Institutions for		Scholars	
	Males	Females	Males	Females
Colleges.....	193	16	62,727	1,103
General Education:				
Secondary.....	7,427	722	1,103,234	108,899
Primary.....	129,803	20,468	4,821,811	1,119,871
Special schools.....	3,404	297	110,557	10,661
Private institutions.....	33,169	1,848	525,020	72,894
Total.....	173,996	23,351	6,623,149	1,313,428
Grand Total.....	197,347		7,936,577	

The universities are at Calcutta, Madras, Bombay, Allahabad, Punjab, Patna, Benares, and Mysore, the last three having been founded

since 1916. The largest of these is the University of Calcutta, whose matriculated students in 1919 numbered 15,860 and the next is the University of the Punjab, with 6194 in 1919. There are various special schools for technical education including arts and industries, engineering, law, medicine, etc. Training schools for teachers included 703 for male teachers with 17,600 scholars and 114 for female teachers with 3100 scholars (1918-19). In that year there were throughout India 162,330 public institutions of education with 7,338,663 scholars, and 35,017 private institutions with 597,914 scholars.

PRODUCTION. Agriculture is the chief occupation, and over 226,000,000 people were reported as being directly or indirectly engaged in it. The following table from the *Statesman's Year Book* of 1921 gives the provisional figures for crop per area sown and crop production for 1919-20:

Name of crops	1919-20 Provisional	
	Area sown, acres	Yield, tons
Rice.....	78,394,000	34,199,000
Wheat.....	29,976,000	10,092,000
Cotton.....	23,063,000	Bales 5,845,000
Linseed, pure.....	2,541,000	Tons 328,000
Linseed, mixed.....	580,000	105,000
Rape & Mustard, pure.....	3,586,000	671,300
Rape & Mustard, mixed.....	2,430,000	503,000
Sesamum, pure.....	3,184,000	376,000
Sesamum, mixed.....	675,000	98,000
Groundnut.....	1,570,000	884,000
Jute.....	2,821,600	Bales 8,425,000
Indigo.....	233,800	In cwts. of dye 37,100
Sugarcane.....	2,695,000	Tons 2,989,000
Tea.....	691,800	Lbs. 377,028,500

The state directly controls a large area of forests, divided into reserve forests, protected forests, and unclassified forest land of which the total in 1918-19 was 251,468 square miles. The largest forest area is in Burma. In 1918-19 the irrigated area was as follows: 21,198,000 acres by canals; 7,268,000 acres by tanks; 14,216,000 acres by wells; and 4,510,000 acres irrigated by other means. In that year 25,000,000 acres were under state irrigation. The live stock in 1919-20 was as follows: Oxen, 117,428,000; buffaloes, 28,493,000; sheep, 21,984,000; goats, 24,134,000; horses and ponies, 1,699,000; donkeys, 1,372,000; camels, 408,000; mules, 75,000. Statistics covering 98.6 per cent of the total wheat area of India were as follows: The number of acres cultivated was 25,722,000, a decrease of 14.1 per cent, or 4,227,000 acres, from the year before. Production amounted to 6,709,000 tons, a decrease from the year before of 33.7 per cent, or 3,413,000 tons. The estimate for the remaining area, for which no exact figures could be given, was 432,000 acres and 113,000 tons.

The most difficult material used in iron and steel making is coal, which is the only limiting factor to an indefinite extension of the iron industry in India. The Damuda Valley coal fields, lying to the west of Calcutta, contain large quantities of coal, but with two exceptions—the Raniganj and Jharria—the large coal fields remain practically undeveloped. Indian coals vary in quality to a greater degree than do English coals.

The best Indian coal will average 10 per cent ash, while some coal sold has a 25 per cent ash content. The output of India is 18,000,000 tons, of which probably 7,000,000 tons are coking coal, suitable for iron and steel making. Considerable quantities of coking coal have been discovered in a new field, the Karanpura, lying 50 miles to the west of the Jharria field, and its early development is certain. It seemed possible that the output of coking coal will reach 16,000,000 tons with some development work.

COMMERCE. No later figures for total trade were available than those given in the preceding YEAR BOOK. The following table from the *Statesman's Year Book* of 1921 shows the distribution of trade for merchandise alone for the year ending March 31, 1920:

Countries	Imports into	Exports of
	India from 1919-20	Indian produce to 1919-20
	Rs.	Rs.
United Kingdom.....	1,04,98,32,780	92,90,86,470
France.....	1,76,87,860	15,70,89,930
Germany.....	4,31,757	1,38,58,550
Austria-Hungary.....	12,65,030	35,70,060
Italy.....	1,36,93,810	7,71,19,130
Belgium.....	69,80,510	9,45,54,170
Holland.....	99,06,550	1,63,49,230
Spain.....	53,66,000	2,35,69,270
Russia.....	15,31,487	11,270
China (including Hongkong).....	6,58,06,370	19,53,61,250
Japan.....	19,15,26,330	46,26,63,360
Ceylon.....	2,51,21,720	10,79,29,480
Straits Settlements.....	5,93,42,790	7,25,28,330
Java, Borneo, and Sumatra.....	21,54,77,080	2,15,15,800
Arabia.....	54,23,030	1,34,75,170
Persia.....	2,29,69,610	2,65,13,800
Egypt.....	1,38,62,710	3,30,20,870
East African Protectorate.....	1,66,67,910	1,31,22,960
Other E. African ports.....	46,11,050	70,19,620
Mauritius (including Seychelles).....	1,28,46,530	1,33,67,980
United States.....	25,26,73,892	48,62,11,870
South America.....	4,60,410	8,64,51,890
Australia.....	3,24,40,793	3,39,37,070

¹ Including Zanzibar and Pemba.

ROUTE MILEAGE OF PRINCIPAL INDIAN RAILWAYS (MARCH 31, 1920)

	5 ft. 6 in. gauge	5 ft. 3 3/8 in. gauge	5 ft. 6 in. gauge	5 ft. gauge
State lines worked by state.....	5,863	1,141	333	7,369
State lines worked by companies.....	9,741	8,306	927	48
Branch line companies under rebate terms and worked by main lines.....	1,160	122	298	108
Companies lines subsidised by the government of India.....	206	1,739	234	...
Indian state lines worked by Indian states.....	...	2,123	171	322
Indian state lines worked by main lines.....	632	804	386	...
Companies lines guaranteed by Indian states.....	330	391	39	...

NOTE.—The grand total route mileage of all railways in India is 36,735 miles.

SHIPPING. The following table from the *Statesman's Year Book* of 1921 shows the number and tonnage of vessels in the foreign trade which entered and cleared in 1918-19 and 1919-20:

Nationality of vessels	1918-19		1919-20	
	No.	Tons	No.	Tons
Entered:				
British.....	2,041	3,582,541	2,169	5,202,865
British Indian.....	258	56,768	263	124,772
Foreign.....	704	1,459,549	456	1,058,577
Native.....	1,641	153,617	1,184	112,082
Total.....	4,644	5,252,475	4,072	6,498,296
Cleared:				
British.....	1,933	3,506,425	2,172	5,286,048
British Indian.....	244	33,194	279	69,945
Foreign.....	725	1,543,111	458	1,018,811
Native.....	1,958	202,200	1,248	126,926
Total.....	4,860	5,284,930	4,157	6,501,730
Total entered and cleared.....	9,504	10,537,405	8,229	13,000,026

RAILWAYS. The railways of India present an interesting example of a transportation system where the net earnings never have been less than four per cent and only in three instances have they fallen below five per cent. The railways turn in large receipts to the government but the capital expenditures for betterments and extension were small, averaging in the three years 1919-22 but \$72,000,000 and for the three years 1916-19 but \$17,500,000 and for the eight years 1908-16 only about \$50,000,000. The result was that the physical condition of the Indian railways in 1921 was far from satisfactory and there was progressive deterioration, not to mention lack of much needed extension to undeveloped regions and the provision of adequate rolling stock for the volume of freight available and offered.

The Indian railways group themselves into five general classes: (1) State lines worked by the state. (2) State lines worked by guaranteed or independent companies. (3) Company lines worked by companies. (4) Lines belonging to Indian states. (5) Miscellaneous.

The first two classes comprise about two-thirds of the entire mileage in India and as will appear from the table below are mostly in the broad gauge of 5 ft. 6 in. adopted in 1851 for greater stability.

Of lines of all gauges there had been a development from 1910 and at the close of the fiscal year 1919-20 the mileage in operation had increased to 26,735 from 32,099; it was made up as follows:

Gauge	1920 Mileage	Increase in 10 years Per cent
5 ft. 6 in.....	17,990	7.71
5 ft. 3 3/8 in.....	15,181	12.2
2 ft. 6 in.....	2,926	10.4
2 ft.....	638	47.6

At the close of the year the new construction under way as authorized amounted to 1822 miles,

of which there was 665 miles of 5 ft. 6 in. gauge and 805 miles of 3 ft. 3 3/8 in. gauge.

The accompanying statistical and financial summary shows that the Indian railways were in a good financial position. At the end of the financial year in 1920 there was a capital of some \$2,000,000,000 invested in the Indian railways and even in that year the return on that capital was 6.8 per cent.

EARNINGS, EXPENSES, AND MILEAGE OF ALL INDIAN RAILWAYS

	Fiscal year ending March 31		
	1918	1919	1920
Open route mileage.....	36,333	36,616	36,735
Total capital (millions).....	\$1,765	\$1,785	\$1,840
Gross earnings (millions).....	\$251.6	\$290.5	\$290
Total working expenses (millions).....	\$114.8	\$136	\$164.8
Operating ratio (per cent).....	45.72	48.45	56.81
Return on capital (per cent).....	7.75	8.09	6.80
Train mileage (millions).....	157	158.6	162.3
Gross earnings per train mile.....	\$1.60	\$1.77	\$1.79

	Fiscal year ending		
	1918	1919	1920
Working expenses per train mile....	\$.73	\$.86	\$1.02
Net earnings per train mile.....	\$.87	\$.91	\$.77
Freight ton-miles (millions).....	21,015	22,141	20,402
Passenger miles (millions).....	16,204	18,040	20,615
Av. miles one ton was carried.....	245.87	242.88	232.33
Av. rate per ton-mile (cents).....	.691	.721	.75
Av. passenger journey (miles).....	37.66	39.24	39.64
Av. rate per passenger mile:			
First-class (cents).....	2.8	2.585	2.715
Second-class (cents).....	1.145	1.21	1.351
Intermediate class (cents).....	.68	.705	.713
Third-class (cents).....	.47	.484	.48
Season or commutation (cents).....	.254	.252	.26
Total (cents).....	.505	.516	.519

FINANCE. The budget for 1919-21 was as follows:

Heads of Revenue	Revenue 1920-21 £
Land revenue.....	23,797,800
Opium.....	2,942,000
Salt.....	4,488,400
Stamps.....	7,607,500
Excise.....	13,674,000
Provincial rates.....	37,400
Customs.....	17,009,700
Income tax.....	11,390,400
Forests.....	3,770,900
Registration.....	745,200
Tribute.....	616,300
Interest.....	4,051,600
Posts and telegraphs.....	6,184,200
Mint.....	679,500
Civil departments.....	2,079,500
Miscellaneous.....	6,276,800
Railways: Net receipts.....	21,608,700
Irrigation.....	5,945,200
Other public works.....	371,300
Military receipts.....	1,519,500
Total revenue.....	134,825,900
Heads of Expenditure	Expenditure 1920-21 £
Refunds, compensations, etc.....	2,346,000
Charges of collection.....	11,344,100
Interest.....	8,192,500
Posts and telegraphs.....	6,073,500
Mint.....	258,200
Civil salaries, etc.....	28,295,000
Miscellaneous civil charges.....	8,614,700
Famine relief and insurance.....	1,000,000
Railways: Interest and miscellaneous charges.....	15,284,100
Irrigation.....	4,390,400
Other public works.....	9,104,100
Military services.....	41,519,500
Total.....	136,422,100
Deduct—Portion of Provin. Expenditure defrayed from Provincial balances.....	4,111,000
Total expenditure charged against revenue.....	132,311,100

GOVERNMENT. The present government of India rests on the Government of India Act of 1915 as amended by the acts of 1916 and 1919. The source of both executive and legislative power in India is the Governor-General in Council. The Council consists of eight ordinary members appointed by the Crown for five years, two being natives of India but the number is not fixed. It is provided that at least three of the members of the Council must have had ten years' service in India. The administration of India in England is under a Secretary of State for India assisted by a council appointed by him and at least half of its members must have resided ten years in India and not have left the country more than five years previous to their appointment. Under the act

of 1919 the appointment of a high commissioner of India was authorized, to whom the power of the Secretary of State in respect to contracts might be delegated and other duties assigned. In India there is also a legislature consisting of the Governor-General and two chambers, namely, the Council of State and the Legislative Assembly. The constitution of these bodies was the result of the Montagu-Chelmsford reform programme. The legislature opened, February 9. See below, under *History*. The Council of State had 60 members of whom only 20 could be officials and the Legislative Assembly 144 members of whom 26 were to be official and 103 elected. The term of the Council was to be five years and of the Assembly three years, but dissolution might be ordered sooner or the term might be extended at the wish of the Governor-General. The legislature is empowered, subject to certain restrictions, to make laws throughout British India for all persons whether native or British, for British subjects in the Native States and for British Indian subjects in all parts of the world. Viceroy and Governor-General in 1921, Earl of Reading, appointed, January 6.

HISTORY

THE NEW GOVERNMENT. The new parliament under the reform programme was opened at Delhi by the Duke of Connaught, February 8. It consisted of the two new representative bodies, the Council of State and the Imperial Legislative Assembly, which were to replace the old legislative Council of the Governor-General and, unlike that body, were to be composed largely of members directly elected by the constituencies. The Council of State, which was to serve as a second chamber, had a membership of sixty and the Legislative Assembly of one hundred elected representatives and forty nominated members. The permanent Chamber of Princes was also inaugurated. Its functions concerned the rights and welfare of about one-fifth of the population, but were consultative not executive, consisting of the making of recommendations in respect to treaties, the rights and privileges of the princes and their states, and matters of common concern or imperial interest. The new viceroy, Lord Reading, former Chief Justice of England, appointed in place of Lord Chelmsford in January, arrived at Bombay, April 2.

MALABAR REVOLT. Throughout the year there were frequent reports of riots and other evidences of native discontent. Toward the end of August fighting took place in the streets of Calcutta where nearly 700 insurgents who had been disturbing the southern and southeastern quarters of the city were reported killed by British troops sent to put down the riots, and 70 of the soldiers and 17 of the policemen were reported missing. A few European residents were also killed. According to the press, a large number of Hindus were massacred but no figures were supplied. At this juncture additional troops were hurried to the seat of the disorder. The centre of the unrest was the region of Malabar which was more or less isolated from the other parts of India. The revolutionary spirit in that region was attributed largely to religious fanaticism and to the hatred of the Mohammedans toward both the Europeans and the Hindus. Another cause was the extension

of the native Indian Nationalist propaganda which was reinforced by reports concerning the treaty of Sèvres which was resented as unjust to Turkey.

THE WORKING OF REFORM. According to the British authorities the reforms introduced by Lord Chelmsford, the former Viceroy, and Mr. Montagu, British Secretary for India, were inspiring the greatest confidence among the people and would lead to their having the greatest possible share in their own government. Under the rule of the new Viceroy, Lord Reading, counted as one of the most able jurists of Great Britain, conditions were said by the authorities to be in a fair way toward improvement. The native Indian leader, Mr. Gandhi, under threat of prosecution had been obliged to retract along with his Mohammedan allies certain violent statements made in public addresses. The authorities declared that free speech was not curtailed except so far as it involved dangerous propaganda. They said the population in general was peaceful and that the Malabar revolt in South India in August which had caused so much concern to the public was not really a revolt of native Indians but of a fanatical sect of Mohammedans. In short the political affairs of India were from the government's point of view progressing admirably. This favorable picture was offset by various reports in the press from prominent persons well acquainted with Indian affairs, including the former Lieutenant-Governor of the Punjab, Sir Michael O'Dwyer who had been at the head of the administration in the Punjab at the time of the Amritsar massacre. See article GREAT BRITAIN in the preceding YEAR BOOK. According to him the reform régime was an illusion. Less than 1 per cent of the population were represented by the members of the Provincial Councils and less than 1/10 of 1 per cent were represented by the Central Assembly at Delhi; nor was there any prospect that the great masses of the people would acquire the franchise for many years to come. This exposed them easily to anti-English propaganda. The members of the reform bodies were chosen exclusively from the English-educated lawyer class. Native criticism made much of this fact, maintaining that the main body of the natives was in no wise represented. According to this version of affairs in India there had recently developed among the masses who were formerly courteous and loyal, violent hatred toward the government and a tendency to obstruct and insult officials to such an unprecedented extent and in certain parts of the country Europeans were living in constant fear of attack. The activities of Mr. Gandhi continued during the year and resulted in many anti-British demonstrations. One of these was a popular movement to burn in public all cloth of British manufacture and many of his followers threw into the fire the foreign cloth in their possession. The policy of passive resistance was carried out in respect to refusal of government titles and honors, and nonattendance at government schools, and there was danger of a general refusal to serve in the army or in the police and to pay government taxes. Gandhi's influence among the masses seemed indeed to be increasing in spite of the public disapproval of such eminent Indians as Rabindra Tagore, and wherever he went in public he was received with signs of the greatest respect and affection.

NATIVE DISCONTENT. The committee of the Congress of all India comprising 200 delegates adopted a resolution, November 6, asserting the principle of "civic disobedience," including refusal to pay taxes and to coöperate with the government. The resolution was presented by the Nationalist leader, Mahatma Gandhi, who had for a long time past insisted on the necessity of this method of carrying on a revolution without violence. The Nationalists under Mahatma Gandhi continued their activities throughout the year in spite of the introduction of the reform measures by the government. The British reform programme did not win over the masses of the population, and was supported almost exclusively from among the small minority of the better educated natives. The Nationalists appealed to race and religious sentiment and took advantage of the existing economic discontent resulting from after-war conditions. The various methods employed by agitators against the government included: The social boycott; the setting up of Nationalist courts whose decisions were, if necessary, carried out by force; and the economic boycott of imports of British or other foreign cloths. In general it was reported that among the masses there was a deep hostility toward the government, especially in the large cities and industrial centres, and this took the form of serious riots, of which there were a great number throughout the year. The influence of Gandhi showed no signs of weakening. In addresses to the people, he said that independence was within their reach, and that it was in their power to organize their own government. If the public would refuse to pay the taxes, the government could be compelled to give up its military and police services. He told the people that it rested with them whether they would remain under the flag of Satan or under the flag of God, and he said the time would surely come when the servants and employees of the English would receive instructions to boycott their employers. In the Congress of All India everyone attending it was urged to make no further use of foreign cloths after August 1, 1921. It was further recommended that the subdivisions of the congress should gather together foreign cloths in order to destroy them or send them out of India. Gandhi, to be sure, preached passive resistance and was opposed to all violence, but it was feared that his followers would go beyond his instructions. It was also feared that the Nationalist movement, if left to itself, would turn toward Bolshevism and result in social and economic disorganization. The position of Gandhi and his followers was likened to that of Kerensky in the Russian revolution, and it was feared that his moderate programme would be swept aside. The non-coöperative movement had failed among the educated classes, but found many recruits both among the Hindus and Moslems. Its purpose was to make India completely independent, first industrially and then politically, whereas, Gandhi aimed first at economic independence. There was also the religious movement for the re-establishment of the Caliphate at Constantinople. The Treaty of Sèvres had given to this movement a distinct anti-British and Nationalist character, and it had been stimulated by many false reports, such as the rumor that the holy place of Islam had been desecrated by the British troops and that

Mecca had been destroyed, etc., which developed a fanatical hostility against England among the people. In the autumn the Viceroy assembled a special committee to consider the possibility of repealing the special laws in respect to riots and revolts. It was composed of representatives from the different provinces. The decision of this committee was unanimously in favor of maintaining these laws.

The situation from the point of view of critics of British policy may be summed up as follows: The British government had made a disastrous mistake in passing the so-called Rowlatt Act. (See preceding YEAR BOOKS.) This law passed in 1919 under the title of the Anarchical and Revolutionary Crimes Act was attacked in the British Liberal press as an arbitrary measure which suspended all civil rights and left the natives at the mercy of star chamber government. This was an extreme characterization but the measure undoubtedly did more than any other single thing to anger the intelligent natives. It was aimed, however, only at the exceptional crimes specified in this title and was enacted for a period of only three years. Moreover, it was not in any instance brought into application. Nevertheless, the members of the official class admitted that its passage was a mistake. In 1921 the government of India declared its intention of repealing it. Another contributive cause to the discontent was the supposed scheme on the part of the British government to subdue the Moslem world as illustrated in the treaty of Sévres and the partition of Turkey. This was particularly irritating to the Moslems of India who had aided the British Empire in winning the war. Again, the Indian government was committed to certain promises which had not been carried out owing apparently to the opposition of the home government. It was pointed out by the critics that while Mr. Montagu, Secretary for India, stood for a conciliating policy toward the natives, this was opposed by Lord Curzon and Mr. Churchill of the home government. Then the effects of the Amritsar massacre were still present in the minds of the natives. Although the massacre was known in England for several months after it was committed, in April, 1919, the House of Commons took no notice of it until December of that year and then took no action that seemed to the Indians at all commensurate with the seriousness of the crime. Not only was General Dyer, the author of the massacre, retired on a pension but he received a large sum of money from his grateful fellow countrymen in recognition of his services. It was the failure to secure justice against the persons responsible for this massacre that led Gandhi to declare that coöperation with the British government was a moral degradation to India. Attempts had been made since to placate the native discontent on this account by the Duke of Connaught and the present Viceroy, but simply by means of friendly speeches calling upon the people to forgive and forget. The Punjab atrocities had also had an unfortunate effect on the people. British journals were admitting in 1921 that the British could not stay in India if they were opposed by the great mass of the people. There were many signs in the course of the year that the people were becoming more and more hostile toward the British rule. In so

far as the Indian National Congress was the voice of the people there was no doubt of the unpopularity of the British government. In response to this discontent the British made promises but went ahead with measures of repression such as the arrest of the Mohammedan leaders, the Ali brothers and Dr. Kitchlew and their sentence to two years' imprisonment on November 1. On this occasion Gandhi proceeded to declare that the time had come for refusing finally any coöperation with the government. This involved refusal to pay taxes and to perform military services.

While the Liberal element generally took the side of the natives and attacked the British government, it was pointed out by neutral writers that these attacks seemed not to take into account the embarrassment in which the government found itself. It had after all to pursue its own interest in international politics as other Powers were going. This led it to take the stand that it had taken in respect to Turkey and Greece, for example. Moreover, although the Amritsar and Punjab atrocities were cited against the government the critics were apt to ignore the atrocities of Malegaon and in Malabar where the associates of Gandhi had brought about a riot among the Moplahs which lasted for weeks and resulted in the killing of hundreds of Hindus and some Europeans. Moreover, under the Gandhi programme the people were burning foreign clothing and declaring it sinful to wear it. Nor did the authors of this policy make any provision for the poor who were thus deprived of clothing.

The Montagu-Chelmsford programme of reform was variously described. According to the critics it really amounted to little as a means of native self-government. According to its defenders, however, the measure of Indian participation was considerable. One set of writers referred to the new councils set up under the Montagu legislation as controlled by the British authorities. Others pointed out that they were so far from being controlled that in certain cases they took a distinctly hostile attitude toward the government and that one of the native Indian leaders had expressed in public his regret at not having become a member of the council in order that he might have a better chance to enforce his opposition.

THE VISIT OF THE PRINCE OF WALES. The Prince of Wales arrived at Bombay, November 17. The ceremonies were accompanied by riotings in the native quarters, but where the Prince appeared he was received with apparent enthusiasm by great crowds, reported to be made up of all classes of the population. At the same time Gandhi, leader of the Nationalists, addressed the people and called for a general strike. Rioting occurred during the Prince's procession in the quarter of the city where the Nationalist element was strongest. It was estimated that 20,000 natives took part in the disorders which resulted in the burning of property, assaults on the police, and the killing of some of the constables. This news was received with many expressions of regret by Gandhi at his inability to prevent violence on the part of the masses. The Prince's journey continued with somewhat similar results in other cities, being received magnificently by the official class, but with protests and rioting by the part of the natives in quarters that did not lie directly on his route.

NATIONALIST CONGRESS. The Nationalist congress was in session at the close of the year. Its president was Hakim Apinal Khan, and it was attended by about 12,000 persons. An attempt to carry a resolution, demanding that the movement for complete independence should employ suitable methods instead of "legitimate" and "pacific" methods, was defeated by the opposition of Gandhi (December 28). A leading spokesman declared that the repressive policy of the British government had been an advantage because it strengthened the resolve of the Indian people to persist in the movement for independence. The proposal of Gandhi for a policy of nonviolence was carried at a full session of the Congress with only about 12 dissenting votes. The resolution according to its author was a challenge to an arrogant government which had disregarded the opinion of millions of natives and was attempting to crush out their freedom. The resolution declared that Gandhi was the sole executive authority of the movement and that neither he nor any of his successors if they should be arrested should be authorized to make peace with the government without the previous consent of the Congress. The people were advised to organize public meetings throughout the country without regard to the law forbidding them and were exhorted to join the Khalifat volunteers and to submit quietly if they were arrested. This action on the part of the Congress in recognizing Gandhi as the sole executive was regarded in certain quarters as a definite step toward the declaration of an independent republic of India.

The Ali brothers had been arrested on the charge of treason, and were acquitted on that count, but convicted of making speeches for the inciting of "public mischief." Other arrests of the followers of Gandhi who were carrying out the policy of noncoöperation were made toward

of Agriculture, covering the years of 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	4,718,000	169,848,000	\$62,843,760
	1920	4,834,000	195,777,000	115,500,660
Wheat.....	1921	2,012,000	24,144,000	25,592,640
	1920	2,070,000	24,840,000	41,482,800
Oats.....	1921	1,878,000	45,072,000	13,070,180
	1920	1,875,000	76,875,000	35,362,500
Barley.....	1921	65,000	1,235,000	592,800
	1920	81,000	2,187,000	1,902,600
Rye.....	1921	306,000	3,978,000	2,903,940
	1920	278,000	3,892,000	5,059,800
Buckwheat.....	1921	6,000	114,000	114,000
	1920	6,000	120,000	144,000
Potatoes.....	1921	70,000	3,670,000	5,176,500
	1920	68,000	6,528,000	5,882,240
Swt. potatoes.....	1921	3,000	396,000	594,000
	1920	3,000	360,000	576,000
Tobacco.....	1921	14,000	12,250,000	1,837,500
	1920	22,000	19,800,000	2,772,000
Hay, tame.....	1921	2,249,000	2,429,000	31,577,000
	1920	2,205,000	2,844,000	54,589,200
Hay, wild.....	1921	21,000	22,000	198,000
	1920	22,000	26,000	338,000
Clover seed.....	1921	57,000	68,000	700,400
	1920	95,000	142,000	1,547,800
Sor. syrup.....	1921	12,000	960,000	960,000
	1920	13,000	1,066,000	1,492,400
Onions.....	1921	3,900	932,000	1,957,200
	1920	4,600	2,282,000	2,829,680
Cowpeas.....	1921	8,000	120,000	304,400
	1920	6,000	96,000	238,000

¹ Pounds.

² Tons.

³ Gallons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Indiana, was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The following table gives a summary for the State in 1919 with corresponding figures for 1914:

	Census		Per cent of increase
	1919	1914	1919-14
Number of establishments.....	7,918	8,022	-1.25
Persons engaged in manufactures.....	329,227	233,270	41.15
Proprietors and firm members.....	5,807	7,229	-19.82
Salaried employees.....	45,803	28,588	60.23
Wage earners (average number).....	277,617	197,508	40.56
Primary horsepower.....	1,094,976	709,708	54.18
Capital.....	\$1,335,851,000	\$668,863,000	98.22
Services.....	402,209,000	155,854,000	158.46
Salaries.....	85,129,000	36,596,000	132.85
Wages.....	317,080,000	119,258,000	164.24
Materials.....	1,174,971,000	423,857,000	177.88
Value of products.....	1,901,846,000	730,795,000	161.73
Value added by manufacture (value of products less cost of materials).....	726,875,000	306,938,000	137.15

¹ A minus sign (—) denotes decrease.

the end of the year. At that time the Moplah war was still going on in the Malabar district. At the end of the year various alarming rumors were circulating in the press, including one to the effect that a movement embracing even the moderate elements in the native population had definitely declared in favor of an independent republic.

INDIANA. POPULATION. According to the report of the census of 1920, there were 2,930,390 residents in the State, Jan. 1, 1920, as compared with 2,700,876 in 1910.

AGRICULTURE. According to the census of 1920, the number of farms was 205,126; and the number of farms in 1910 was 215,485, a loss of 10,359, or 4.8 per cent. The following table is compiled from the estimates of the United States Department

TRANSPORTATION. The total steam railroad mileage of the State in 1920 was as follows: Main track, 7161.22; second main track, 1369.27; third track, 62.74; fourth track, 26.74; and side track, 4547.44. The total mileage in 1921 was as follows: Main track, 7159.25; second main track, 1356.92; third track, 62.75; fourth track, 26.73; and side track, 4603.79. The total mileage of electric railroads in 1920 was as follows: Main track, 1987.90; second main track, 171.18; and side track, 124.58. The total mileage in 1921 was as follows: Main track, 1982.68; second main track, 157.31; and side track, 136.92.

FINANCE. The latest available figures were those for the fiscal year ending Sept. 30, 1921. The balance on hand, Oct. 1, 1920, was \$4,568,397.37.



D. U. & U.

MOHANDAS KARAMCHAND GANDHI
Indian Nationalist



D. U. & U.

MUSTAPHA KEMAL PASHA
Turkish Leader



D. U. & U.

NICOLAI LENIN
Head of the Russian Soviet Government



THREE POLITICAL AGITATORS PROMINENT IN 1921





The receipts for the fiscal ending Sept. 30, 1921, were \$21,604,283.90, the disbursements for the same period, \$23,183,170.36; and the balance on hand, Oct. 1, 1921, was \$2,989,490.91. The aggregate bonded debt of the State on the same date was \$345,615.12.

EDUCATION. The total school revenue in 1920-21 was \$53,768,002.72. In 1920-21, there were 797,537 children enumerated in the State (between 6 and 21 years). The total enrollment in the schools was 577,432. There were 15,584 elementary and 5123 high school teachers.

CHARITIES AND CORRECTIONS. The names of the institutions, the situation, date of founding and number of inmates present on Sept. 30, 1921, were as follows:

Reformatory, Jeffersonville (1821), 791; School for the Deaf, Indianapolis (1844), 297; Central Hospital for the Insane, Indianapolis (1845), 1455; School for the Blind, Indianapolis (1847), 125; Prison, Michigan City (1859), 1352; Boys' School, Plainfield (1867), 514; Soldiers' and Sailors' Orphans' Home, Knightstown (1867), 302; Woman's Prison, Indianapolis (1869), 91; School for Feeble-Minded Youth, Ft. Wayne (1879), 1395; Northern Hospital for Insane, Logansport (1883), 1070; Eastern Hospital for the Insane, Richmond (1883), 914; Southern Hospital for the Insane, Evansville (1883), 798; Soldiers' Home, Lafayette (1896), 592; Girls' School, Clermont (1903), 368; Southeastern Hospital for the Insane, North Madison (1905), 1232; Village for Epileptics, Newcastle (1905), 405; Sanatorium, Rockville (1907), 104; Robert W. Long Hospital, Indianapolis (1911), 104; State Farm, Putnamville (1913), 540; Farm Colony for the Feeble-Minded, Butlerville (1919), 80.

On Sept. 30, 1921, the total population of the several State institutions was 12,529; of the county poor asylums, 3271; of the county jails, 741; and of institutions for dependent children, 1553, making a total of 18,094. Expenses for these purposes in 1920-21 were as follows: State institutions, \$4,446,251.74; county poor asylums, \$1,184,943.23; dependent children, \$511,380.78; county jails, \$299,018.19; and outdoor poor relief, \$417,230.13.

LEGISLATION. The regular biennial session of the legislature met in January, 1921. The only laws of exceptional interest or importance enacted were the following: Pure agricultural seed law; financial support for public health nursing associations; the erection and equipment of a modern reformatory; repeal of the full train crew and full switching crew laws; full guardianship of a mother over her children; uniform warehouse receipts act; providing for the preparation of an executive State budget; creation of a board for the examination and licensing of civil engineers and land surveyors; acceptance of the federal vocational rehabilitation act; authorizing cities to create a city planning and city zoning commission; authorizing cities to establish the commission or the commission-manager form of municipal government; creating the office of State juvenile probation officer; certificate of title for motor vehicles to prevent theft; authorizing the construction and equipment of a hospital for crippled children; and providing for the creation of a commission to make an educational survey of the State.

ELECTIONS. On Sept. 6, 1921, a special election was held for the ratification or rejection of 13

proposed constitutional amendments which had been adopted by the general assemblies of 1919 and 1921. The total number of electors who participated at this election was 218,698. Only one of the thirteen amendments was adopted. The amendment adopted confers full suffrage on women and prohibits aliens from voting until they are fully naturalized. During the year, special elections were held in twelve cities on the question of the adoption of the commission-manager plan of government. The proposal was defeated in eleven municipalities and adopted in Michigan City only. Municipal elections were held throughout the State on November 8. Of the ninety-eight cities, sixty-two elected Democratic mayors, thirty Republican mayors and six Independents.

OFFICERS. Governor, Warren T. McCray; Lieutenant-Governor, Emmett F. Branch; Secretary of State, Ed Jackson; Treasurer of State, Ora Davies; Auditor of State, William G. Oliver; Attorney-General, U. S. Lesh; Clerk of the Supreme Court, Patrick J. Lynch.

JUDICIARY. Supreme Court: David A. Myers, Howard L. Townsend, B. M. Willoughby, Julius C. Travis, Louis B. Ewbank.

INDIANA, UNIVERSITY OF. A co-educational State institution at Bloomington, Ind.; founded in 1820. In the fall session there were 2815 students enrolled of whom 1239 were women. Of this total 1212 were in the arts and sciences; 256 in medicine; 109 in law; and the rest in the Schools of Training of Nurses, Commerce, and Finance, Social Surveys, and the Graduate School. The faculty numbered 219. The library contained 138,352 volumes. The total income including appropriations from the state and federal governments was \$927,970. A plan was made for the construction of a Commerce and Finance building in 1922 and a campaign was going on among the alumni for the raising of \$1,000,000 for the building. President, William Lowe Bryan, Ph.D.

INDIANS. POPULATION. The total population of the Indians of the United States, exclusive of Alaska, June 30, 1921, was 340,838, of whom 101,506 belonged to the Five Civilized Tribes, including freedmen and intermarried whites. Exclusive of the Five Civilized Tribes the figures was 239,332. The Indian population by States was as follows:

Alabama.....	405
Arizona.....	43,519
Arkansas.....	106
California.....	12,725
Colorado.....	785
Connecticut.....	189
Delaware.....	2
District of Columbia.....	37
Florida.....	452
Georgia.....	125
Idaho.....	4,017
Illinois.....	194
Indiana.....	125
Iowa.....	342
Kansas.....	1,498
Kentucky.....	57
Louisiana.....	1,066
Maine.....	839
Maryland.....	32
Massachusetts.....	550
Michigan.....	7,593
Minnesota.....	12,968
Mississippi.....	1,412
Missouri.....	171
Montana.....	12,587
Nebraska.....	2,520
Nevada.....	10,940

New Hampshire.....	44
New Jersey.....	99
New Mexico.....	23,287
New York.....	6,053
North Carolina.....	11,824
North Dakota.....	9,240
Ohio.....	152
Oklahoma.....	119,481
Oregon.....	6,608
Pennsylvania.....	358
Rhode Island.....	106
South Carolina.....	304
South Dakota.....	23,159
Tennessee.....	56
Texas.....	2,110
Utah.....	1,559
Vermont.....	24
Virginia.....	822
Washington.....	8,151
West Virginia.....	7
Wisconsin.....	10,404
Wyoming.....	1,764

EDUCATION. Of the approximately 86,000 Indian children of school age about 30,000 were enrolled in the government schools and about an equal number in non-government schools. The day and boarding schools under government control offer academic courses from the first grade through intermediate and grammar grades; in a few instances through what is equal to junior high school. Vocational courses of equal grade are offered, with special emphasis put upon agriculture and home economics. In the large non-reservation schools many trade courses are provided. Of not less importance than the academic training is the industrial preparation of Indian boys and girls for independent citizenship. The problem of supervision and of securing competent teachers is difficult. The ultimate aim of the administration is to place all Indian children in the public schools. Many Indian children have been out of school because of lack of school facilities, especially in the Southwest, but in other sections of the country conditions have been changing rapidly and public schools were available for a very large percentage of the Indian children in those sections.

In a majority of the States the Indian administration reported a hearty cooperation on the part of the State authorities in providing for Indians in public schools.

HEALTH. The Indians are subject to the same diseases as white people. They have more trachoma and perhaps more tuberculosis, but there are fewer venereal diseases, less diphtheria and scarlet fever, and, as a rule, pneumonia is not so prevalent among them as it is among the whites. In 1921, according to the Report of the Commissioner of Indian Affairs, several reservations, particularly of those in the Southwest, had visitations of measles, smallpox, chickenpox, mumps, scarlet fever, and influenza in an attenuated form. Some cases of sore throat with infection were also present in a few communities. Several deaths resulted from bronchial pneumonia following measles, but there were no fatal issues from any of the other diseases above mentioned, and the epidemic situation with respect to these diseases was practically clear at the close of the fiscal year. Typhus fever appeared on the San Juan Navajo Reservation about Nov. 20, 1920. The disease was almost exclusively confined to the Indians. The last case was reported, June 13, 1921.

AGRICULTURE. The following information in regard to Indian farming was supplied by the

Commissioner of Indian Affairs: While many of the Indians engage in other industries, by far the greater number must look to agriculture for their support. In the year ending June 30, 1921, 49,962 Indians cultivated 890,700 acres of land, producing crops worth \$11,927,366, as compared with 36,459 Indians who cultivated 762,126 acres the previous year, the value of the crops being \$11,037,589. The comparatively slight increase in the value of the crops was owing to the fall of prices.

Recognizing the benefit of experimentation, Congress makes a small appropriation each year for such purposes on the different reservations. This money is used in conducting experiments with different crops, plants, etc., with the view of developing varieties best suited to the conditions which prevail in a particular locality. The largest and most important farm of this nature is at Sacaton, on the Gila Reservation in Arizona, which is operated jointly by the Indian Service and the Bureau of Plant Industry of the United States Department of Agriculture. The operation of this farm has been very successful and of great benefit not only to the Indians but to the whites as well. The States Relations Service of the United States Department of Agriculture has placed its facilities at the disposal of the Indian service for the benefit of the Indians. The county agents cooperate with the Indian service farmers; representatives of the State agricultural colleges visit reservations and give illustrated lectures on suitable topics appropriate to that particular vicinity, and boys' and girls' clubs have been organized on several reservations. Agricultural fairs are held in the fall of each year on many of the reservations, at which the Indians display farm products and live stock in competition with each other, premiums being given for the best exhibits.

THE QUESTION OF INDIAN COMPETENCY. The inability of the Indian to care for himself and compete under existing conditions with the whites, continued to present a difficult problem to the Indian service. The following conditions and considerations are presented in the Commissioner's report:

Notwithstanding the sincere efforts of officials and competency commissions to reach a safe conclusion as to the ability of an Indian to manage prudently his business and landed interests, experience shows that more than two-thirds of the Indians who have received patents in fee have been unable or unwilling to cope with the business acumen coupled with the selfishness and greed of the more competent whites, and in many instances have lost every acre they had. It is also true that many of the applications received for patents in fee are from those least competent to manage their affairs, while the really competent Indians are in large numbers still holding their lands in trust. It is evident to the careful observer that degree of blood should not be a deciding factor to establish competency, as there are numerous instances of full-bloods who are clearly demonstrating their industrial ability by the actual use made of their land and who are shrewdly content with a restrictive title thereto that exempts them from taxation. At the same time the instances are far too frequent where those of one-half or less Indian blood—often young men who have had excellent educational priv-

leges—secure patents in fee, dispose of their land at a sacrifice, put most of the proceeds in an automobile or some other extravagant investment, and in a few months are “down and out,” as far as any visible possessions are concerned. The situation, therefore, suggests the need of some revision of practice as a check upon the machinations of white schemers who covertly aid the issuance of fee patents in order to cheat the holders out of their realty, and as a restraint upon those who are not so lacking in competency as in the disposition to make the right use of it, and also as a stimulant to the thrifty holder of a trust title to accept the entire management of his estate with the full privileges and obligations that follow.

INDO-CHINA, also known as **FARTHER INDIA**. The southeastern peninsula of Asia including the following divisions: Burma, politically attached to British India; Siam, a self-governing monarchy; French Indo-China, including Annam, Cambodia, Cochinchina, Laos, and Tongking; the Federated Malay states; the Straits Settlements proper; and the Malay states of Johore, Kedah, Kelantan, Perlis, and Trengganu. See the articles **BURMA**; **FRENCH INDO-CHINA**; **SIAM**; and other principal states mentioned above.

INDO-IRANIAN LANGUAGE. See **PHILOLOGY**, **MODERN**.

INDUSTRIAL WORKERS OF THE WORLD.

For a general history of this organization together with an exposition of its principles see the **YEAR BOOK** for 1919. During the year the Industrial Workers of the World attracted little or no attention from the public. The courts of California and most of the western States had previously declared against the economic theory of syndicalism, and the trials of individual Industrial Workers of the World during the year saw a continuation of this attitude. There appeared to be some basis for believing with a certain sympathizer that, “Persecution of the Industrial Workers of the World has weeded the weak, wild, and unsteady from its ranks; the Industrial Workers of the World is rapidly developing into a stable, dignified labor organization.” The habit of thinking of all Industrial Workers of the World as typical “reds,” ferocious and Russian in appearance, was gradually giving way. An examination of the forty syndicalist prisoners in California showed many of them to be of old American stock; two were overseas veterans, one a volunteer, and two of the three foreign-born prisoners were Holland intellectuals. The membership of the Industrial Workers of the World was estimated at approximately 100,000. Secretary, George Hardy.

INFANTILE PARALYSIS. Acute anterior poliomyelitis, the infectious disease responsible for infantile paralysis with its thousands of crippled men and women is now being treated with the serum of horses artificially immunized to the disease. This is obtained by injecting the animals with cultures of the *streptococcus polymorphus*. The good effects of this serum have been known since 1917, both in epidemics and in isolated cases. Dr. Rosenau of the Mayo Foundation has a series of 259 patients all of whom were children between the ages of 5 and 7. In 60 of these there was time to inject the serum before the appearance of the paralysis—that is, during the first 36 hours of the disease. In this series not a single death or paralysis occurred, or in other words there was 100 per cent of complete recovery.

In 61 other patients the injections were not practiced until after the first 48 hours. In this series paralyzes were already present, nevertheless the results were almost equal to those of the above mentioned series, for all recovered and but one was left with a slight paralysis. In the third series of 123 patients treatment was not begun till the 5th or 6th day. Eight children of this series died and 30 were left paralyzed but the remaining 61 made complete recoveries. These results are most remarkable as will be seen by a comparison with the average mortality and other figures under former plans of treatment. The flat death rate is 4 per cent and the incidence of paralysis from 29 to 68 per cent, according to the locality and epidemic. The serum is injected into the muscles or veins and nothing is gained by injection into the spinal cord. *Journal of the American Medical Association*, August 20, 1921.

INGRAM, ELEANOR MARIE. Author, died, March 22. She was born in New York City, Nov. 26, 1886, and educated by private tutors. She wrote *The Game and the Candle* (1911); *The Flying Mercury* (1911); *From the Car Behind* (1912); *Unafraid* (1913); *A Man's Hearth* (1915); *Twice American* (1917).

INSECTS. See **ZOOLOGY**.

INSURANCE. Insurance in 1921 felt the effects of the general deflation and depression, and in practically every branch new problems were to be faced, owing both to commercial conditions generally and those peculiar to the industry, as well as those of a rather fortuitous character prevailing during the year.

FIRE INSURANCE. In addition to purely underwriting activities important outside matters were in evidence during 1921. The State of Mississippi was engaged in a suit against a number of leading insurance companies in the effort to enforce heavy penalties, which was bitterly fought. (See below.) In Arkansas a suit was in progress to prevent the State Insurance Commissioner from enforcing a rate reduction order which was opposed as unjustifiable, while in New York during the sessions of the Lockwood Legislative committee the insurance companies were assailed and much newspaper notoriety given to their alleged practices.

With decreased incomes and profits the fire companies inaugurated reforms in various departments and the business was said to be in better intrinsic condition than in the times of inflated prosperity. There was an estimated decrease in the income from premiums of between 10 and 20 per cent in 1921 from 1920, due of course to the reduced stocks in many businesses and diminished industrial activity. Furthermore, values had shrunk to the process of deflation, reducing premium incomes.

Fire losses in 1921 was excessive, the highest since the year of the San Francisco fire. (See **FIRE PROTECTION**.) According to the Insurance Editor of the *Journal of Commerce* (New York): “There were several reasons for this. In the first place there was a vast amount of insurance in force written in 1920 and previous years. Even normal losses would have been heavy. But losses were more than normal. There was a serious let down from the patriotic spirit which prevailed during the war and caused people to be careful as a duty. A period of wild wastefulness had followed, and with it came carelessness, which always results in fires.”

"Active moral hazard, however, was the most serious factor in the loss situation. It was the natural result of business conditions and manifested itself suddenly and to an alarming extent. There is no question that part of the heavy loss it brought the companies could have been avoided by more careful underwriting, but it would have taken a prophet to detect more than a fraction of it. Up to the autumn of 1920 moral hazard losses had been almost unknown for several years. With prices going up, most property was underinsured and a fire meant a loss to its owner. But when prices began to drop values in many instances became less than insurance, and when sales fell off and money became tight the conditions were ripe for moral hazard losses."

FIRE INSURANCE IN CANADA. It was estimated that the combined fire loss ratio of all companies reporting to the Dominion Insurance Department would run from 15 per cent to 20 per cent over that of 1920 (which was 43.41 per cent on the basis of paid losses to cash received for premiums). This was also accompanied by a reduction in premium income variously estimated at from 10 per cent to 15 per cent, naturally due to the diminishing values of insurable property attending the general deflation. Nevertheless expenses, fixed and otherwise, and taxes for the Canadian companies did not show any perceptible decrease nor even any signs of an improvement so that the year was not one of marked prosperity. A significant feature of the year was the decrease in insurance rates. Along with the decrease in the total average loss ratio in Canada during the years previous to 1921 the average rate charged upon all classes of risks written exhibited a marked reduction, namely, from \$1.36 per \$100 of insurance written in 1910 to \$1.05 in 1920—a decrease of 16 per cent. In Toronto, largely on account of improved fire-fighting equipment and facilities the companies voluntarily reduced the rates upon dwelling houses by approximately 15 per cent.

Estimates of the total value of all property destroyed or damaged by fire during the year 1921 in Canada were made as high as \$31,000,000, as compared with \$28,000,000 for 1920.

THE MISSISSIPPI INSURANCE SITUATION. In 1921 the State of Mississippi was a centre of insurance interest. Late in 1920 suits were brought against a number of insurance companies by the State Revenue Agent, who charged them with violating the anti-trust law in using the advisory rates of the Mississippi Inspection and Advisory Rating Company and sought to collect penalties aggregating several billion dollars. The case in due season came to trial before the Chancellor at Jackson, and most of the companies were found guilty and received the minimum penalty of \$25 for each day each company had used the advisory rates. These penalties aggregated about \$9,000,000. The case then went on appeal to the Supreme Court.

To complicate the situation the funds due the companies in Mississippi from agents and assured at the time was suit was filed were impounded in the hands of receivers appointed by the Chancellor. Then when the Revenue Agent had secured judgment he sought to tie up all money possible on which he could levy in the event that the final outcome would be favorable to him. He garnisheed all funds due the defendant insurance companies from Mississippi corporations and virtually all

important corporations of other States which do business in Mississippi. To forestall this move the insurance companies disposed of large holdings of securities in Mississippi corporations, but amounts due them from other corporations for premiums or otherwise at the end of the years were tied up by garnishment. The situation resulted in nearly all the large companies leaving the State early in 1921.

Later the legislature of Mississippi met in regular session and a number of bills were introduced with a view to relieving the State from the partial insurance famine thus brought about. The outcome of these efforts and of the litigation was not apparent at the end of the year. It was said that the business interests of the State were disposed to favor the enactment of laws under which the fire insurance companies could operate there in peace, but the Governor and a large number of followers were strongly opposed to such a course and desired the laws to remain so that the companies could operate only under destructive competitive conditions.

INSURANCE LEGISLATION. In the legislature of 44 States and territories in session in 1921 a total of 1471 bills affecting the insurance business were introduced and 428 were enacted into law. These bills were fairly well distributed between the different branches and were classified as follows: Life, 212; fire, 279; casualty, including fidelity, surety, and auto, 421; departmental, 256; general and miscellaneous, 303 bills. In this connection it was interesting to note that a number of these bills dealt with State insurance and at least indicated that in some quarters there was still a tendency towards this form of State industrialism. Thirty-five proposals for the establishment of State insurance funds in the life, fire, bonding, and casualty branches of the business were introduced but thirty-two of these proposals were defeated. The three which became law were passed in Missouri, Arizona, and Texas. The Missouri measure (workmen's compensation) was acquiesced in by insurance interests as the best solution of a very complicated situation; the Arizona measure (workmen's compensation) was enacted as the result of legislative strategy; the Texas measure (fire fund) was declared inoperative by Texas State officials.

A study of the legislative tendencies of the year revealed that the State insurance measures received support from the American Association for Labor Legislation, the American Federation of Labor, the Non-partisan League, and from business men who were willing to have the State enter the insurance business but who would be unwilling to have their own business interfered with. There was also support manifested, as heretofore, by many educators and theoretical economists.

MARINE INSURANCE. Naturally in view of the shipping (q. v.) situation marine insurance had an extremely bad year in 1921 and at the close of the year the prospects of immediate improvement were very poor. J. B. Levison, president of the Fireman's Fund Insurance Company and one of the leading marine underwriters in the United States, summarized the situation in an interview published in the *Weekly Underwriters* as follows:

"1. The great depression in shipping and the shrinkage in foreign commerce, which is naturally reflected in the volume of premiums written by the offices.

"2. The excessive number of companies competing for the business, due to the entrance of almost every fire company in America and England into marine underwriting during the war. It is probably within the mark to say that the aggregate volume of marine premiums written in England and the United States in 1921 will be considerably less than 1913 (the year before the war), with many times the number of companies competing.

"3. The advent into marine insurance during the war of a large number of new brokerage firms with no accounts on their books and no knowledge of the business, who are endeavoring to hold their position by practices which must inevitably result disastrously to underwriters.

"3. Unusual and abnormal losses on account of the breakdown in the morale of the peoples of the world at large, lack of proper care in handling of cargoes and a distinct lowering of standards in the upkeep of vessels owing in a large measure to low freight rates.

"5. Operation of laws in the various States which were primarily designed to apply to fire insurance and have been extended to marine, placing marine writing offices at a distinct disadvantage as compared with companies of other countries."

LIFE INSURANCE. During 1921 there was a decrease in the amount of life insurance written as well as a considerable increase of lapse and a remarkable addition to the volume of policy loans. Nevertheless, business was done on a sound basis and at the end of the year underwriters and agents were confident that business was on a firm and all things considered satisfactory basis. Under modern conditions it was realized that life insurance adapted itself to good times, hard times, low mortality, and epidemics, casualties usual and unusual, as no other fiduciary financial institution was able to do. In fact it was stated that when an American institution such as legal reserve life insurance through half a century of experience was able to weather wars, panics, epidemics and their well-known aftermaths without default, deficit, debate, or delay upon a single contract and when through all these vicissitudes it was able to increase in assets, in favor and in the value of its service, that institution might well be entitled to unusual respect and be regarded with pride. Legal reserve life insurance in America is such an institution.

Two very important pieces of constructive legislation in life insurance were notable in 1921: Namely, the Federal revenue method of taxing life insurance and the passage of a standard amortization law in twenty States. These were the result of coöperative effort on the part of the leading life insurance associations and interests.

Life insurance received the attention of the forty-four legislatures in regular session and several special meetings during 1921. Something over 4000 bills affecting the life insurance business were introduced, but as already stated a very small proportion of these became laws. The American Life Convention had established a system of coöperation with local companies in the South and West and thus was able to coöperate in directing these proposed measures to the governors' offices where they were worthy of support and to dispose of them in instances which were hurtful to policy-holders, companies, and the public.

NEW U. S. LIFE TABLES. Life insurance circles were interested towards the close of the year by the announcement of the forthcoming publication by the Bureau of the Census, of the second official publication on life tables, derived from births, deaths, and populations in the United States. These tables show conditions as they existed in 1890, in 1901, and in 1910, thus making it possible to study the changes which have taken place in mortality during two decades. It is shown that mortality at practically all ages is higher among men than among women. In particular it appears that the most favorable mortality in the United States is found among women living in the rural districts. The rural classes, regardless of sex, enjoy a much lower mortality for nearly the entire range of life than those living in the cities. While the expectation of life, both among men and women in most classes has steadily increased, there is no indication of any definite lengthening of the span of life. In other words, while almost all classes of persons are living to an older average age, the limiting age of human life does not seem to have advanced. In 1901 the expectation of life among white females at birth was about three years more than among white males, and in 1910 the excess in favor of the females had increased to almost three and one-half years. There seems to have been a general improvement for all classes for the ages up to about age 40 for men and age 50 for women, except for the Negro population. Above these ages no improvement is shown, and in some cases the mortality at the older ages in 1910 was actually less favorable than it was in 1901.

An examination of the infant mortality tables indicates a decided improvement in the infant mortality rate in most classes of the population between 1901 and 1910. The expectation of life of children born in 1910 also shows a considerable improvement over the expectation of life of children born in 1890 and 1901 in practically all classes of the population. The infant mortality in the rural districts was considerably lower than that in the urban districts both in 1901 and 1910, but the difference in favor of the rural districts was not as great in 1910 as it was in 1901, indicating that the efforts to improve infant mortality conditions in our cities are undoubtedly meeting with success.

COMPARISON WITH FOREIGN COUNTRIES. Life tables are also given by sex for Australia, Denmark, England, France, Germany, Holland, India, Italy, Japan, Norway, Sweden, and Switzerland. They may be used to compare rates of mortality and expectations of life at any age in one country with those of any other country or with those in the United States. A comparison with these countries shows that except for France, India, and Japan, the rates of mortality among men and women are less favorable in the United States than in the countries above mentioned. For example, the lowest annual rate of mortality per thousand at birth is found in Norway to be about 81 for males and 67 for females, while for a similar class in this country, namely, white people, it is about 127 for males and 105 for females. This indicates that there is still much room for improvement in the United States.

The most important mortality tables used by life insurance companies in this country and in

foreign countries are included in this publication.

LIFE ANNUITY AND MONETARY TABLES. Tables of life annuities and other monetary tables at various rates of interest, based on life tables for the United States, were computed for the purposes they serve in legal and business practice. The values of life annuities are frequently required in the settlement of estates, the division of wills, the determination of the measure of damages, and in connection with pension funds. Until the appearance of the United States Life Tables there were available practically no reliable life tables faithfully representing mortality conditions as they now exist in the general population of this country.

The mathematical theory of the construction of life tables is developed in great detail and is illustrated by photographs of the actual numerical calculations made on adding machines in the construction of the life table for males in the State of New York, 1910. This portion of the text will be of great service to all those who desire to acquaint themselves with the theory of life table construction as well as with the actual mathematical processes. All the original statistics on births, deaths, and populations used in the construction of the life tables are given in this publication. An extensive index of twenty pages has been prepared to enable the reader to locate quickly information to be found in the text and tables.

PLATE GLASS INSURANCE. Just prior to the beginning of the year 1921, the price of glass was somewhat reduced and this resulted in a reduction in the net charge for glass replaced, but such reduction did not bring the net charge down to prewar prices by any means. In 1920 the losses paid by the companies were 70 per cent greater than normal on account of the high cost of material, labor, and freight, these last two not showing much improvement in 1921. Lower material costs, however, made it possible for the companies to reduce premium rates where they applied and where larger stocks of glass were carried. See also the article **WORKMEN'S COMPENSATION**.

INTERCHURCH WORLD MOVEMENT. The closing up of the affairs of this organization was nearing completion toward the end of 1921. The Interchurch was no longer a going concern and would cease to exist entirely early in 1922. Headquarters have been maintained at 160 Fifth Avenue, New York City.

INTERCOLLEGIATE LIBERAL LEAGUE. See **UNIVERSITIES AND COLLEGES**.

INTERNAL COMBUSTION ENGINES. In the United States during 1921 there was a fair demand for oil engines, particularly during the latter part of the year, making an estimated total of the year's sales of about 50,000 horsepower. This, in view not only of general conditions but also of the great depression and inactivity in mining and other industries, where the oil engine had achieved an important position among isolated power plant units, was considered a good record. There were not, however, the orders for large Diesel engines for copper mines, and until late in the year for oil-pipe lines, though such developments as the oil fields at Mexia, Texas, were responsible for orders for some 6000 horsepower. At sea for the tankers, especially those built for the Mexican tank trade, it seemed to be the current opinion that steam engines and boilers

fired by Mexican boiler oil were no more expensive to operate than a Diesel engine where a high grade of oil was used. However, there were small vessels using semi-Diesel engines for harbor and coastwise service, on the basis that the lower first cost justified greater expenditure for fuel. Naturally shipbuilding (q. v.) was greatly restricted during the year and few advances in marine engines were scored.

The applicability of the Diesel engine for use at isolated stations was shown during the year in copper mines where four 2000-horsepower two-cycle Diesel engines were installed. Another interesting plant especially on the economic side was the Diesel-engine station of the Chicago Drainage Commission which was completed during the year. Here were installed four 750-horsepower Diesel engines to furnish power to the Chicago Park system. The use of Diesel engines here was especially significant inasmuch as coal was comparatively cheap in Chicago, consequently an unrivalled opportunity was afforded for studying the cost of operation of such a plant compared with the costs of steam plants in the same district.

Mechanical engineers during the year were looking with greater favor on the Diesel engine for use at central-stations where units of not more than 1000 horsepower were required. Of course even greater economy of operation was sought and where there were high coal prices many industrial plants were considering the possibilities of the Diesel engine.

Diesel engines of large capacities both in Europe and America had been developed, but the tendency in 1921 was to regard 2000 horsepower, per unit as the maximum capacity for some years on the existing basis of the industry, and it was believed that the perfecting of designs in the interest of greater efficiency and reliability was of greater importance than increasing the range of powers.

The solid-injection oil engine, referred to in the **YEAR BOOK** for 1920, continued to receive attention and was manufactured by a number of builders. The air-injection Diesel engine in some quarters was recommended for capacities over 300 horsepower, while for units of less power the solid-injection engine was preferred.

In the production of gas engines also, 1921 was a year of reduced activity. Of course in numbers and units of small size the farms were the leading customers, and naturally the farmers in 1921 had a restricted purchasing ability, but at the end of the year an increased demand was apparent. Gas engines of larger size went principally to the oil fields where the normal demand was about 7000 engines averaging 25 horsepower each annually. This amount of business of course was not done in 1921, but greater activity in the oil fields was anticipated. It seemed to be apparent that the gas engine in quite a few fields was losing ground to the liquid-fuel burning engine. And in the development of this last-named type the greatest recent development had unquestionably occurred in the internal combustion engine industry.

INTERNATIONAL COMPOSERS' GUILD. See **MUSIC, General News**.

INTERNATIONAL CO-OPERATION. **INTERNATIONAL CO-OPERATIVE ALLIANCE.** The tenth Congress of the International Coöperative Alliance was held at Basel, Switzerland, on August 22-25. In the absence of Sir William Max-

well the President, Mr. G. J. D. C. Goedhart of The Hague, presided over the meetings. Among the chief features of the session may be mentioned the reading and discussion of the report on Russia. The Executive Committee had decided, July 12, in respect to representation on the part of the Russian coöperative organizations that the only authority which could nominate the Russian representatives was the central authority at Moscow, and that the executive had no alternative but to accept its properly authenticated nominations. Objection was made to this decision and an amendment to the committee's report was proposed to the Central Committee which held a meeting at Basel previous to the assembling of the Congress. This amendment was to the effect that in view of the condition of the Russian coöperative movement the approaching Congress should leave vacant, until the next meeting of the Central Committee, the places to which Russia was entitled on that committee. The amendment was submitted to the Congress and rejected by 733 votes to 474 in favor of the printed report. Another question of importance was that of the attitude of the Alliance toward the Ter-Meulen scheme of International Credit which had been brought into discussion by the League of Nations. It was suggested that the scheme might be of use to coöperative societies because they could use the bonds issued under it as a means of creating credit. It was understood that in Russia the small peasant would not produce more than he wanted for his own consumption on account of the difficulty in exchanging his surplus at reasonable rates. Coöperative organizations could aid these producers. A resolution was adopted expressing satisfaction with the steps already taken to establish international coöperative trade and calling upon the International Committee of the Coöperative Wholesale Societies to make the fullest use of the opportunities afforded by the present breakdown of international trade through capitalized channels for the purpose of establishing international trade through coöperative channels. It recommended that the International Committee of the Coöperative Wholesale Societies take immediate steps to aid each country in applying all its available resources to building up the export trade through coöperative channels, and it urged the International Coöperative Alliance Committee and the International Committee of Wholesale Societies to take all possible measures for removing obstacles resulting from the attitude of governments or other causes. Another resolution was passed providing for a special conference of coöperative banks or banking departments with a view to definitely realizing the scheme for an International Coöperative Bank. In view of a question arising as to the attitude of the Congress toward free trade and protection, a resolution was passed placing the Congress on record against all forms of competition. It declared that the commercial policy down to the present time had been a policy of war, adopting a system of protection as a defense against what was called enemy invasion or a system of free trade by way of an offensive attack if the country was so strong that it had no fear of the imports from other countries. While the coöperatives recognized that the system of free trade had helped the consumer by reducing the cost of living, their own policy was not nationalist, or

protectionist, or a policy of free international competition, but was a policy which aimed at the association of all nations. The Congress supported proposals already made to the League of Nations concerning the establishment of conditions insuring the just distribution of raw materials and food stuffs and concerning the control over national monopolies and trusts. A peace resolution was carried after some debate, urging coöperative societies to use all vigilance in order to prevent any political or economic conflict between peoples, and to spread the idea everywhere of the necessity of reducing military expenses to a minimum; also recommending that a larger place be given in the schools to instruction in coöperation. Other resolutions defined the purposes of the coöperative societies with a special view to removing any misunderstandings with trade unions; approved steps already taken, and urged continuation of effort to secure representation in the International Labor Bureau; appealed to coöperative organizations on behalf of the victims of the Russian famine; protested against political persecution on the part of the reactionary Hungarian government, against Polish persecution in the Ukraine, and against outrages committed by the Fascisti in Italy.

The following account of the coöperative movement in foreign countries in 1921 was given by Mr. H. Rappaport, Secretary of the Coöperative League of America:

GREAT BRITAIN. The coöperative movement continued to grow faster than the population. During the year, 377,292 new members joined coöperative societies, bringing the total past four and a half million heads of families. While the population was growing at the rate of 4.7 per cent during the period of 1911-21, the membership of the consumers' coöperatives grew at the rate of 69.75 per cent. Now, 40 per cent of the population of Great Britain supply their wants through the consumers' coöperatives.

The Coöperative Wholesale Society of England reported a loss of \$12,000,000 during the year, and the trade of the Scottish C. W. S. fell off considerably. This condition is attributed by the Committee which investigated the causes of these losses, principally to "the heavy fall in values of stocks and the decreased purchasing power of the consumers due to economic and industrial conditions." The industrial crisis and the protracted strikes were largely responsible for the decreased purchasing power of the workers.

During the lockout of the miners in the early half of 1921 the coöperatives furnished hundreds of thousands of dollars' worth of foodstuffs to the families of the miners, on credit. They also gave substantial donations in the form of food, fuel, and meals to the miners.

GERMANY. The German genius for organization has shown itself markedly in the coöperative movement. The Consumers' Coöperatives are federated into a Central Union of 1200 societies, having a membership of over four million heads of families. The total number of consumers' societies in 1921 was 2400. Coöperation was growing more rapidly in Germany than in any other country, owing to the hard times incident to the war, and to the intensive educational work of the coöperatives. The membership of the German coöperatives was larger than that of the British coöperatives. One-half the popu-

lation of Saxony were members of coöperatives. Saxony had 160 coöperatives, which conducted 700 stores. Construction of houses by coöperative associations of tenants was proceeding rapidly, while private building was practically at a standstill. The most energetic branch of the Consumers' Coöperative Movement to-day is in Germany. There has been a steady drift towards coöperation, which is being relied upon to work the great social changes which Germany desires.

AUSTRIA. Private business broke down almost completely in 1921, while the coöperatives grew in power. Half the people of Austria during 1921 were fed and clothed through the coöperatives. The largest consumers' coöperative in the world, with a membership of 200,000, is at Vienna. The state distributes the staple foodstuffs over which it exercises a monopoly control, through the coöperative stores.

HUNGARY. During 1921 the coöperatives of the workers were persecuted by the government, their leaders were jailed or exiled, their boards of management were suspended, and government officials were put in control. The coöperatives of the middle class, which are federated into the wholesale society "Hangya" (the Ant), were not molested by the government, and made material progress.

FRANCE. France has 4000 coöperative societies, with a membership of 2,000,000. More than one-third of these societies are exclusively banking societies. There has been a distinct tendency of amalgamation of independent societies, since the war. All the societies of Paris have united. There is a wholesale federation, the Magasin de Gros, consisting of 1500 local societies. This wholesale organization in 1921 did a business of 150,000,000 francs. Over 200 railroad cars are owned by the wholesale, and are used for the purpose of transporting produce to its many warehouses. The coöperative societies are also federated into an educational union, whose district advisers tour all over the country, some of the advisers going as far as Morocco with the message of coöperation.

DENMARK. The financial support for the highly developed coöperative movement of Denmark is furnished by the Danish Coöperative Bank. The most impressive and the largest building in Copenhagen is owned by this bank, which opened in 1921. The coöperative housing societies were very active during the year. The Workers' Coöperative Building Society has already accommodated over 2000 families in buildings which cost 20,000,000 kronen, and has several buildings in process of construction. The Danish Coöperative Wholesale Society, which supplies coöperative stores in the Scandinavian countries, is now the largest wholesale business in the north European countries.

RUSSIA. No figures were available for the number of coöperative societies, though there were about 50,000. During 1921 there was a relaxation of the strict governmental supervision over the coöperatives, which have now regained control of their own funds. The agricultural coöperatives and copartnership factories are unhampered by any governmental interference. Consumers' coöperatives are practically free from control by the government.

FINLAND. The movement in Finland is separated into two factions: The "neutrals" or

middle-class coöperatives, federated into the "S. O. K.," and the working class coöperatives. In the early part of 1921 there were 634 of the former, and 104 of the latter. There are over 2000 coöperative stores and many factories.

INTERNATIONAL LANGUAGE. The supporters of the cause of an international language were displaying great activity on all sides, taking advantage of the interest in international problems. Although the solution of the problem would naturally seem to depend chiefly on linguists by profession, all things seemed to indicate that, with a very few exceptions, they would be the very last to fall into line. Still the efforts of the Washington Committee, to bring the question again and again before the world of scholars, if not before the linguists specially, were promising. It was well said that "the resuscitation of this problem in official and academic circles was due primarily to the initiative of the United States representatives at the meeting of the International Research Council which was held in Brussels in August, 1919." The report of the committee appointed on this occasion to investigate the problem was published in Edinburgh, in 1921: "From the evidence laid before it, the Committee (Professor Ripman dissenting) has come to the conclusion that a language of the type of Esperanto and Ido should be adopted as the International Auxiliary Language; and also that, whatever language be adopted, it should be placed under scientific control" (p. 12). The Washington Committee then had various scientific bodies appoint representatives to study the question. For instance, five men were appointed by the Modern Language Association of America (on request of the American Council on Education; which coöperates in this matter with the Committee on the International Research Council; see *Publ. Mod. Lang. Ass.*, December, 1920, p. LXXV). Again, the Washington committee was instrumental in bringing about a Symposium on the question of an International Auxiliary Language, in connection with the meeting of the A. A. A. S. (American Association for the Advancement of Science, which met at Toronto, Dec. 27-31, 1921.)

The supporters of the cause of the International Language have for the second time, in 1921, succeeded in forcing the attention of the League of Nations, at Geneva. In consequence, Dr. Inago Nitobe, one of the secretaries of the League, was delegated to attend the International Congress of Esperanto, which met at Prague, August 29 to September 6 (with 35 delegates present). A wrong impression has been conveyed that as a result of Dr. Nitobe's Report (which will be communicated to persons interested by the Washington Committee) the League of Nations had appointed a committee to consider the use of *Esperanto* as the International Language. The truth is that a report on "the results obtained in this field (of any auxiliary language)" was asked by a vote of September 15. A few sentences of the long report might well be quoted to show exactly where the question stands: Dr. Nitobe refers to the action of Great Britain, April, 1918, suggesting that "it might be worth while for the government, in concert with our Allies, to appoint a committee to inquire into the potentialities of artificial languages such as Esperanto and its rivals. . . ;" he also refers to Professor Sweet's article in the *Encyclopædia Britannica* on the problem; again he

refers to the appointment of the committee by the International Research Council, in Brussels, in July, 1919. And finally one of the concluding paragraphs reads: "The League should profit by the voice of those individuals or organizations which have had long experience in dealing with international meetings. In September, 1920, at the World Congress of the Union of the International Association, at Brussels, a Resolution was passed unanimously (with the exception of one vote in favor of the French language) recommending to all interested in the progress of the World-Language problem that these should join the Esperanto movement and should postpone all theoretical discussion about linguistic details until the language be officially adopted by inter-governmental decision. If frequent references are made to Esperanto in this Report, where I am treating of an international language in general, it is not because I espouse its cause (for I do not—at least not yet) but because it supplies the best examples." Then, after a motion that Esperanto be introduced as an International Language the League voted to "request the Secretariat to prepare for the next Assembly a report on the results obtained in this field" adding this note: "By international-language is understood a practical auxiliary language, which will in no way prejudice the rights and traditional prestige of the French tongue as the international language of diplomacy."

The situation in diplomatic circles to-day outside of the *League of Nations* was well expressed in the following Summary of Conclusions of the report just mentioned, which was published in Edinburgh, in 1921:

"The view of the Committee may be summarized, very briefly, as follows:—

"(1) Latin is too difficult to serve as an International Auxiliary Language.

"(2) The adoption of any modern national language would confer undue advantages and excite jealousy.

"(3) Therefore an invented language is best. Esperanto and Ido are suitable; but the Committee is not prepared to decide between them."

It will be well also, in order to appreciate the concrete situation to remember what happened shortly before the Conference on Limitation of Armaments met in Washington. A rumor was abroad to the effect that not only would English be the language of the Conference, but that French would be excluded there as a diplomatic language. French public opinion was aroused and some professed to know that the French Academy was going to enter an official protest. As a matter of fact the organizers of the Conference in defining their position, merely stated what circumstances combined with traditions, had naturally brought about: Namely, unless an artificial international language be adopted, English was naturally the language for discussion of international problems dealing with countries of the Pacific, just as French was naturally the language for discussion of international problems dealing with Mediterranean countries. Thus, as French was the diplomatic language at the Versailles Conference with English as second, so would English have to prevail in Washington with French as second—since, as everybody understood it, Washington was to deal above all with problems of the Pacific.

Two books on the theoretical side of the question may be mentioned here: Dr. E. Sapir, Chief Anthropological Division, Victoria Memorial Museum, Ottawa, *Language*, New York, (1921); and A. L. Guérard, Agrégé de l'université, and now of the Rice Institute, Texas, *A Short History of the International Language Movement*, (London).

There are, just now, three International Languages which seem to be specially favored by people who have studied the question, Esperanto, Ido, and Esperantido. The shortcomings of Esperanto had been sharply pointed out by the Idists—who moreover accepted Dr. Zamenhoff's Esperanto as the foundation of the International Language. The Idists were, and are, linguists who tried to introduce scientific discipline into Esperanto, and they gained easily the approval of language experts. The trouble was that they were at times too much inclined to enforce scientific discipline at the expense of the flexibility needed for a "living" language,—and that argument was used against them mercilessly by the adherents of dilettantish Esperanto; still the Idists would have held their ground undoubtedly if it had not been for the loss of the remarkable scholar who was their leader, the mathematician Couturat (killed in an automobile accident in the early days of the war). Thus, the Esperantists had the field again; at least with the masses; but many really valuable supporters of the cause having come to realize too well the shortcomings of Esperanto were inclined to withdraw their interest. In the meanwhile a man had been quietly working on a scheme by which the artificiality of Esperanto was happily brought under control of the natural laws of language, and at the same time whatever better practical results could be obtained in bending principles to efficiency, this was done. R. de Saussure's Esperantido is a remarkable step towards the ultimate goal of a working International Language.

Thus the situation may be summed up as follows: Ido after having achieved its end (which was to impose scientific discipline on Esperanto), ceases to retain attention. Esperanto, after having wisely taken heed, but yet having reformed as little as possible, is provisionally in the saddle again. There is, however, another that runs close behind, and Esperanto may be outdistanced at any time by the Saussure project, or still another better. The unsafe position of Esperanto is well indicated by the fact that its supporters avoid letting the case rest on its own merit. In their abundant publications they always lay stress on the fact that Esperanto is taken up here and there and elsewhere; but one cannot help feeling that in so many cases it was adopted because people wanted a language and took the one they knew—and possibly they did not know the best.

As to Esperantido, R. de Saussure, the Swiss scholar who worked it out, had started in 1920 a very promising little journal. Then, as he knew that the question of the International Language would be taken up at the meeting of the League of Nations in Geneva in 1921, he discontinued his paper generously so as not to give an argument to those people who would fight the International Language on the pretext that the advocate of the cause could not agree among themselves. He published in the meanwhile a leaflet called *La Vojo*, which means the "way" to get Esperanto on a scientific and at the same time a practical basis; he called the language used by him "evol-

vinta Esperanto." When the Geneva Conference was over, he came back to his first project, and in the *Journal Internacia Lingvo Esperantida*, from September to December presented his scheme all worked out. It is reprinted separately under the title *Fundamentan Vortaro kaj Gramatiko de la Lingvo Esperantida*. The office of the Esperantida Akademio is in Bern, Switzerland, President, Dr. E. Guillaume, Secretary, E. Chenevard. From 1922 on the *Journal* will be published in Czechoslovakia, on account of the too great expense of printing in Switzerland. The office will remain, however, in Switzerland. See PHILOLOGY, MODERN.

INTERNATIONAL PEACE AND ARBITRATION. RENEWAL OF THE HAGUE CONFERENCES. The Advisory Committee of Jurists, invited by the Council of the League of Nations to draft a project for a Permanent Court of International Justice, in pursuance of Article 14 of the Covenant, regarded their work imperfect unless it were to be supplemented from time to time by meetings of the nations in conference at stated intervals. The Advisory Committee, therefore, adopted the following resolution:

The Advisory Committee of Jurists, assembled at The Hague to draft a plan for a Permanent Court of International Justice,

Convinced that the security of States and the well-being of peoples urgently require the extension of the empire of law and the development of all international agencies for the administration of justice, recommends:

I. That a new conference of the nations in continuation of the first two conferences at The Hague be held as soon as practicable for the following purposes:

1. To restate the established rules of international law, especially and in the first instance, in the fields affected by the events of the recent war.

2. To formulate and agree upon the amendments and additions, if any, to the rules of international law shown to be necessary or useful by the events of the war and the changes in the conditions of international life and intercourse which have followed the war.

3. To endeavor to reconcile divergent views and secure general agreement upon the rules which have been in dispute heretofore.

4. To consider the subjects not now adequately regulated by international law, but as to which the interests of international justice require that rules of law shall be declared and accepted.

II. That the Institute of International Law, the American Institute of International Law, the Union Juridique Internationale, the International Law Association, and the Iberian Institute of Comparative Law be invited to prepare with such conference or collaboration inter sese as they may deem useful, projects for the work of the Conference to be submitted beforehand to the several Governments and laid before the Conference for its consideration and such action as it may find suitable.

III. That the Conference be named Conference for the Advancement of International Law.

IV. That this Conference be followed by further successive conferences at stated intervals to continue the work left unfinished.

This proposition was proposed by Elihu Root who spoke on behalf of American jurists and secured the adoption of this recommendation, embodying ideas which he had expressed on more than one occasion and which had been laid without effect before the American Commission to Negotiate Peace at the Conference at Paris.

The proposal to establish the Permanent Court of International Justice was made by him when Secretary of State of the United States, in his Instructions to the American Delegates to the Second Hague Peace Conference, whereof the chairman was the late Joseph H. Choate. It was laid before the Conference by Mr. Choate; it was explained and piloted through that body by the then solicitor for the Department of State, and

the project known as the Convention for the Establishment of a Court of International Justice was largely his draft, and this draft convention is, to all intents and purposes, with sundry amendments and additions, the original of the project to which the Assembly of the League of Nations gave its approval on Dec. 13, 1920. The proposal to establish the Court of Arbitral Justice in connection with the Prize Court, which at one time seemed likely to be installed at The Hague, was made by Robert Bacon, then Secretary of State of the United States. Under the Secretaryship of Philander C. Knox, Mr. Bacon's immediate successor, the Solicitor for the Department of State, negotiated, at Mr. Knox's direction, an agreement at Paris in March, 1910, by virtue whereof Germany, France, Great Britain, and the United States agreed to take the necessary measures to secure the establishment of the Court of Arbitral Justice. The Director secured a unanimous recommendation of the Institute of International Law at its session in Christiania in 1912, and the promise of Mr. Loudon, then Minister for Foreign Affairs of The Netherlands, to transmit a plan with the approval of this country for the establishment of the tribunal for at least nine Powers, to be opened to any and all Powers which might be willing to utilize it, upon a footing of equality. This was in January, 1914, but in the summer of that year the aggressive policy of the then Austro-Hungarian Monarchy against Serbia, with the support of the then German empire, plunged the nations into the World War.

By Article 14 of the treaty of peace signed at Versailles on June 28, 1919, in the first section known as the Covenant of the League of Nations, the Council of the League was directed to "formulate and submit to the members of the League for adoption plans for the establishment of a permanent court of international justice." To aid the Council in the performance of this arduous duty, that body invited jurists of the highest repute from twelve countries. The jurists selected from Argentina and Serbia were unable to attend. The jurists from Belgium, Brazil, France, Great Britain, Holland, Italy, Japan, Norway, Spain, and the United States met at The Hague and began their labors on June 16, 1920, and adjourned on July 24, having devised a method of appointing the judges of the proposed court acceptable alike to the so-called great and small Powers, thus assuring the ultimate constitution of the Court.

The seat of the Court, like that of the Permanent Court of Arbitration, is at The Hague. The Members of the Permanent Court of International Justice are elected for nine years, and may be re-elected; and the statute provides something for their physical needs. Traveling expenses incurred in the performance of their duties are refunded to them, and they are allowed fifty Dutch florins a day for living expenses while actually at The Hague. In addition, the Judges, including the President and the Vice-President, who are respectively elected by the Court itself for terms of three years, have an annual salary of 15,000 florins, which, at the normal rate of exchange, is equivalent to \$6030. With the exception of the President, they are also to receive a duty-allowance, based on aggregate days of actual service; but, except in the case of the Vice-President, who may receive duty-allowances up to a maximum of 30,000 florins, the duty-allowances run to a maxi-

num of 20,000 florins in any one year. The President of the Court, as he is required continuously to reside at The Hague, receives, in place of the duty-allowance and the allowance for daily living expenses, a fixed special allowance of 45,000 florins a year. To sum up, the annual compensation of the President is 60,000 Dutch florins, while that of the Vice-President may reach a maximum of 45,000 florins and that of the other Judges a maximum of 35,000 florins. A very substantial reason for these financial provisions will be seen in the fact that the Judges are not permitted to exercise "any political or administrative function," or to "act as agent, counsel or advocate in any case of an international nature." These inhibitions are applicable to deputy-judges only when they are actually sitting and as regards cases in which they sit. Consequently, the deputy-judges are not provided with salaries, but, if called on for service, are to receive, in addition to their traveling expenses and the allowance of fifty florins a day for living expenses at The Hague, a duty-allowance which is limited to a maximum of 30,000 florins in any one year.

The Court must hold in each year at least one session, which, unless the Court itself otherwise provides, must begin on the 15th of June, and must continue until the cases on the list are disposed of. The President, however, may summon an extraordinary session whenever necessary.

Each member of the Court is required, before taking up his duties, to make a solemn declaration in open court that he will exercise his powers impartially and conscientiously. The members, when engaged in the business of the Court, enjoy diplomatic privileges and immunities.

The official languages of the Court are French and English, but the Court may, at the request of the parties, authorize another language to be used. The parties are to be represented by agents and, as in the case of ordinary courts, may have the assistance of counsel or advocates. Proceedings are both written and oral. This applies to the testimony of witnesses. Hearings are to be public, unless the Court shall otherwise decide, or unless the parties demand that the public be not admitted. Minutes must be kept of all hearings.

All questions are to be decided by a majority of the judges present at the hearing, and in the event of an even division, the President or his deputy is to have a casting vote.

Every judgment is required to state the reasons on which it is based and to contain the names of the judges who have taken part in it. If the judgment is not unanimous, dissenting judges are entitled to deliver separate opinions. Judgments must be read in open court, after due notice to the agents of the parties. If the meaning or scope of the judgment is disputed, the Court, on the request of any party, is to construe it. Applications for revision may be made only on the ground of the discovery of some decisive fact which, when the judgment was rendered, was unknown to the Court and also to the party claiming revision. But no application is allowed if the want of knowledge was *lieu* to negligence. The Court frames its own rules of procedure, both regular and summary.

The full Court is required to sit, except where it is expressly provided otherwise. But the statute does so expressly provide in three classes of cases:

1. In cases under the Labor Clauses of the Treaty of Versailles (Part XIII) and of the other Peace Treaties, the Court is required to appoint every three years a special chamber of five judges, by which, instead of by the full Court, the case is, if the parties so demand, to be heard and determined. In all labor cases, whether determined by the full Court or by the special chamber, the judges are to be assisted by four technical assessors, who sit in an advisory capacity but do not vote.

2. In cases relating to transit and communications, particularly under Part XII (Ports, Waterways, and Railways) of the Treaty of Versailles, and the corresponding parts of the other peace treaties, provision is made for the appointment of a similar chamber, working under similar conditions and with similar procedure.

These special chambers may, with the consent of the parties to the dispute, sit elsewhere than at The Hague.

3. The Court is to form annually a chamber of three judges, who may, at the requesting of the disputants, hear and determine cases by summary procedure.

The terms of the Covenant contemplated only the creation of a voluntary jurisdiction, and specified, as among disputes "generally suitable" for arbitration, those concerning (1) the interpretation of a treaty; (2) any question of international law; (3) the existence of any fact which, if established, would constitute a breach of an international obligation, or (4) the nature or extent of the reparation to be made for the breach of an international obligation. Such disputes, it was provided, might be tried by a court agreed on by the parties or stipulated in any convention between them. There was no word of compulsion or of obligation. Nevertheless, the plan prepared by the international committee proposed that the Permanent Court of International Justice should, as between members of the League, have, without any special convention, jurisdiction of cases of a "legal nature" falling within the four categories above enumerated, as well as the interpretation of sentences passed by the Court itself, and, in the event of a dispute as to whether a case came within any of the specified categories, the dispute was to be settled by the decision of the Court.

When this plan was received by the Council, objection was made to the jurisdictional clauses on the ground that it in effect amended the Covenant, in that it substituted the decision of the Permanent Court for the free choice which the Covenant allowed to the parties between laying their dispute before that Court, or before another international tribunal, or before the Council. In the end this objection prevailed; and the Statute, as approved by the Assembly, simply provides that the jurisdiction of the Court "comprises all cases which the parties refer to it and all matters specially provided for in treaties and conventions in force." The advocates, however, of a broader, more definite and more exacting obligation were not wholly defeated; since the statute further provides that any Power may, either when ratifying the statute or at a later moment, declare that it recognizes as obligatory, *ipso facto* and without any special agreement, as regards any other Power accepting the same obligation, the jurisdiction of the Court in all or any of the four legal categories above enumerated; that such declaration may be made

unconditionally, or on condition of reciprocity, or for a certain time; and that any dispute as to whether the Court has jurisdiction shall be determined by the Court itself. Such a declaration had, prior to November last, been signed by eighteen Powers, and they are waiting for some of the Great Powers to follow their example.

INTERPARLIAMENTARY CONFERENCE. The Nineteenth Conference of the Interparliamentary Union was held in Stockholm, Sweden, August 17, 18, and 19, 1921. The members of the American delegation were: Senators William B. McKinley, of Illinois, President of the American Group of the Interparliamentary Union; Joseph T. Robinson, of Arkansas; Thomas J. Walsh, of Montana; Representatives Andrew J. Montague, of Virginia, President of the American Peace Society; Edwin B. Brooks, of Illinois; Allen W. Barkley, of Kentucky; Fred A. Britten, of Illinois, and former Representative James L. Slayden of Texas. Arthur Deerin Call was the Executive Secretary of the American Group. The day before the opening of the Conference, the Executive Committee of the Union met in the morning, the Council convened in the afternoon and the Swedish group had given an evening reception in honor of the visiting delegates. Twelve groups were represented at the Conference by some 120 delegates. His Majesty, King Gustaf, gave a reception Friday afternoon in the royal palace in honor of the delegates, Count Wrangel, Minister of Foreign Affairs, and the Countess Wrangel having given a reception in their palace the night before.

A vice-president from each of the groups outside of Sweden was elected, as follows: Lord Weardale, Great Britain; Senator van Kol, Holland; Representative Nakanishi, Japan; Senator Ferraris, Italy; former Representative Loveland, Norway; Representative Usteri, Switzerland; Representative Schucking, Germany; former Representative Slayden, United States of America; Representative Mantere, Finland; Representative Moltesen, Denmark, and Representative Mataja, Austria. The groups of Canada, Spain, and Estonia had appointed delegates, but they were unable to be present. France and Belgium were not represented.

Lord Weardale's address as President of the Interparliamentary Union was somewhat of the nature of a report. The sessions were opened August 17, with an address by the President of the Conference, M. le Baron Adelsward, which was followed by an address by M. von Sydow, President of the Swedish Council of Ministers. M. van Kol, of Holland, presented the report of the Bureau upon the work accomplished during the war. Among those who addressed the general conferences were: Mr. Slayden, of the United States; Mr. Schucking, of Germany; Mr. Robinson, of the United States; Mr. Sigg, of Switzerland; Mr. Moltesen, of Denmark; Mr. Walsh of the United States; Mr. Branting, of Sweden.

The Secretary General was directed to extend invitations in its name to the members of the national legislatures of the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, El Salvador, Uruguay, and Venezuela.

The Conference cordially approved the prin-

ciple of an association of nations with the aim of organizing the world for the maintenance of peace, which the Conference is entitled to consider as an important aspect of the work zealously pursued, by the Union for a long period of years. Such an association must attain an all-embracing character to enable it to exercise that high mission with which it must naturally be intrusted.

The Conference was of the opinion that the Union must increase and strengthen its activities in the field of international coöperation, to the end that the burden of armaments may be reduced and the peace of the world may be attained. It also greeted with satisfaction the creation of an International Labor Bureau; it declared that the results relative to the problem of armament obtained ought to be regarded simply as a minimum and as a first step on the part of the League of Nations for the realization of this ideal, and expressed the hope that the second Assembly, called for the month of September, 1922, will be able to advance further in the way thus opened, and that it will bend every effort to the end that the resolutions of the first Assembly shall be realized, both in letter and in spirit. It noted with satisfaction that the international situation this year is more favorable for such efforts because the disarmament of Germany, according to the demands of the Allied statesmen, is progressing rapidly; because Russia, although menaced with a famine which demands imperative aid of all civilized peoples, is entering again into the world's economic life, and because decided reductions of armaments have been accomplished in several countries, notably in those of Belgium, France, Great Britain, and Italy.

It further called attention to the necessity of organizing an exchange of information relative to armaments, definitely provided for in the Covenant, an exchange which will insure the publicity of such information and consequently the control of public opinion relative to the action of states in this field—a procedure of prime importance for the promotion of right international relations and the maintenance of peace. It expressed its sincere regrets that apparently so few states have yet replied favorably to the recommendation of the Assembly relative to the limitation of military, naval, and air budgets. It hoped that the second assembly will be able to insist more energetically, and this time with unanimity, upon a conclusion of this initial truce in order to counteract any tendency to a return of the competition in armaments before a general plan for the reduction of armaments has been prepared.

While the Society of Nations is becoming strong enough to assume the rôle of the court of last resort in the matter of the reduction of armaments throughout the various States, the Conference recommended as provisional measures: (a) The creation of an "organ of control and verification" for the examination of information furnished to the League relative to armament, this according to the French amendment to article 8 of the Covenant proposed at the conference at Paris. (b) The delegation to the Council of the League of the exclusive right to pass upon the existence of an "exceptional situation" with power to approve a derogation from an engagement of a State not to exceed the military, naval, and air expenditures as set forth in the recommendation of the first Assembly.

In view of the then forthcoming Conference to assemble in Washington, upon the invitation of the President of the United States, to consider the question of the limitation of armaments and related subjects, the members of the Interparliamentary Union were urgently requested to foster, in all ways open to them, in their respective countries a spirit of willingness to make all reasonable concessions necessary to a successful issue of such conference, of any plan it may propose for the limitation of national armaments, being just and equitable and to labor for the acceptance of the same by the governments of their respective countries.

The Conference most earnestly approved the recommendation passed by the financial conference at Brussels in 1920, which reads "that the Council of the League of Nations confer as soon as possible with the different interested governments with the view of obtaining their agreement to a general reduction of the crushing expense which the armaments in their present condition cause to fall upon the impoverished populations of the world, swallowing up their resources and retarding their restoration after the ravages of the war," and the Conference urged all of the groups, before the meeting of the second Assembly, to lead their governments to insist upon this recommendation and to support it with stronger resolutions. It invited them to exercise an unflinching vigilance, to the end that their respective governments may conform to it.

The Conference welcomed with satisfaction the fact that the Covenant of the League of Nations has recognized the principle of compulsory investigation and mediation in all disputes which are not submitted to judicial decision. It also expressed the opinion that the present requirements relative to vising passports ought to be immediately limited to the requirement of the international police, and that all expenses and restrictions with regard to the procuring or exhibiting of passports by travelers should be reduced to the strictest minimum.

THE BUREAU INTERNATIONAL DE LA PAIX, with headquarters at Berne, Switzerland, was before the war an effective clearing house of the peace societies of Europe. In 1902, its executive officer, Dr. Albert Gobat, shared with E. Duncommun the Nobel Peace Prize. In 1910, during his régime as "Director," the International Peace Bureau itself received the Nobel Peace Prize. The International Peace Bureau, which was organized at the third International Peace Congress, at Rome, in the month of November, 1891, became thereafter the moving spirit behind the International Peace Congresses held between the years 1891 and 1913 at Berne, Chicago, Antwerp, Budapest, Hamburg, Paris, Glasgow, Monaco, Rouen, and Havre, Boston, Lucerne, Milan, Munich, London, Stockholm, Geneva, and The Hague, respectively. The twenty-first Universal Peace Conference was held at Luxemburg, August 10-13, 1921. There were less than one hundred delegates in attendance. Evidently little attention had been given to the programme of the Conference, and, aside from a brief address to a limited number by an under-official of the Luxemburg Government, no attention was paid to the gathering on the part of the local officials or of the people of the city. The inescapable impression was that the peace movement had been hard hit. Some of the old

peace workers were present. Besides the President of the Bureau, Senator Henri la Fontaine, of Belgium, there were such men as Dr. L. Quidde, of Munich; Louis Favre, of Geneva; H. von Gerlach, of Berlin; M. Emile Arnaud, of Luxarches; M. Lucien Le Foyer, of Paris; F. E. Pollard, F. Maddison, and Rev. H. Dunnico, of England; Edward de Neufville, of Frankfort, and Henry Golay, the General Secretary of the Bureau, of Berne, Switzerland. During the Conference there were five meetings of the Council, one meeting of the General Assembly, four plenary meetings of the Conference, besides the meetings of the various committees. The permanent committee appointed last year at the meeting of the General Assembly at Basel submitted two reports, one with reference to the activity of the central office at Berne and the other with reference to the financial situation, both of which aroused no little discussion.

The proposal that a branch of the central office be opened at Geneva, and that the General Secretary, Mr. Golay, be authorized to serve in the capacity of corresponding secretary particularly for the purpose of correlating the League of Nations and the newly established office of the Union of the Associations for the League of Nations in Brussels, was disapproved. The final vote upon this matter showed that the majority of the delegation are opposed to uniting the International Peace Bureau with the League of Nations, on the ground that the aims of the two organizations are not identical.

There was no little criticism of the management of the central office, and the matter has been left to a committee, with instructions to report at the next meeting of the Council. But the discussion relative to any amalgamation became somewhat bitter. M. Le Foyer frankly complained that the International Peace Bureau is in a "momentous crisis"; that its officers are without vision, initiative, activity, generosity; that there is no leadership; that the great demand is for a successor to the lamented Gobat; that the Peace Bureau must be reorganized. The "crisis" to which Le Foyer referred he attributed not only to these conditions which he believes exist, but the more especially to the proposal that the General Secretary of the Bureau be made assistant secretary to the International Union of the Associations for the League of Nations, with headquarters in Brussels. He looked upon such a step as a practical amalgamation of the peace societies with the Union of the Association for the League of Nations, and hence in fact, as the abolition of the peace societies. He expressed the view that the fusion of the Berne Bureau with the Brussels Union would, therefore, be a catastrophe for the peace movement—indeed, its extinction.

M. Le Foyer's argument convinced the majority of the delegates and the Berne Bureau will continue its independent existence. The most effective work of the Conference, as is usual in such conferences, took place in the meetings of the various committees and of the Council.

Dr. G. Bovet, president of the Permanent Committee, reported at length with reference to the Bureau's accounts for 1920 and the budget for 1921. The Council voted to direct the Secretary General of the Bureau to organize such relations between the Bureau and the League of Nations, including the International Labor Bureau, as may be necessary to keep the various associations con-

nected with the Bureau informed as to the works of the League of Nations and to cooperate as efficiently as possible in the change and perfection of that organization. The place of meeting for the next Congress was left for decision to the Council. The net results of all the conferences are set forth in the resolutions.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE (2 Jackson Place, Washington, D. C.). Since early in the summer of 1921 the Secretary's Office and the Division of International Law, both located in Washington, have been at the service of the Department of State in the collection of data and the preparation of monographs regarding the questions upon the programme of the Conference on the Limitation of Armament and Pacific Problems.

In the Division of Intercourse and Education donations of \$100,000 for the reconstruction of the library of the University of Louvain, \$100,000 for the reconstruction of the library of the University of Belgrade, and \$200,000 for the reconstruction of the Library at Rheims, were made, and the cornerstones for the buildings were laid in the presence of representatives of the Endowment. Work on reconstruction was actually begun. Collections of books on American history and institutions have been donated to a number of foreign libraries including libraries in Belgrade, Strasbourg, Tokyo, and Prague. This Division has also been very active in the dissemination of authentic information regarding current events particularly relating to the Conference on the Limitation of Armament.

The Division of Economics and History centred its activities largely upon the Economic and Social History of the World War, authorized in 1920. Editorial boards to supervise the collection and preparation of material to be included in the History have been established and are now operating in Great Britain, France, Belgium, Austria, Italy, and the Balkan countries, and editorial arrangements are in course of completion in Czecho-Slovakia, The Netherlands, Hungary and Germany. The History will be composed of a number of separate national series. A great many contracts for volumes have been concluded, quite a few monographs are already in hand and three volumes in the British series have already appeared from the press.

The Division of International Law has, in addition to its services to the State Department in connection with the Conference on the Limitation of Armament and Pacific Problems, completed and published two of the most important sets of books in its programme, namely, the two-volume work entitled *Treaties and Agreements with and concerning China, 1894-1919*, compiled and edited by J. V. A. MacMurray, and the English translation of the Proceedings of the First and Second Hague Peace Conferences of 1899 and 1907 in four large volumes, accompanied by a fifth volume containing consolidated tables of contents and indexes. Other books of less importance have also been issued during the year. During the year the Division of International Law awarded twelve Fellowships in International Law to enable students and teachers to improve their knowledge of the subject.

The Year Book of the Endowment for 1921, number 10 in the series, covered the first ten years of the Endowment's efforts. The spirit of the

organization is expressed in language taken from the report of its secretary:

"The failure of the gentlemen at Paris who undertook to lay down terms of peace to recognize that the world could not be permanently organized on a peaceful basis while blood of millions of their countrymen, victims of the war, was still dripping from the swords of their enemies, was a serious blunder, which has contributed more than anything else to the chaos now existing throughout the world. Before we can look to the future organization of the world for peace, the immediate questions relating to the settlement of the war must be finally disposed of. Any organization or arrangement for preserving the peace of the world which does not contemplate the voluntary coöperation of the former enemies in harmony and in all sincerity must necessarily be, no matter under what high-sounding title it may be called or in what idealistic terms it may be framed, a temporary war measure only and is predestined to the same fate that has befallen all previous alliances of force and balances of power."

In this volume are the annual reports of the Executive Committee, composed of Elihu Root, James Brown-Scott, Nicholas Murray Butler, Austen G. Fox, Andrew J. Montague, Henry S. Pritchett, and Charlemagne Tower. There are also the reports of the Director of the Division of Intercourse and Education, Dr. Nicholas Murray Butler; of the Director of the Division of Economics and History, Prof. John Bates Clark; of the Director of the Division of International Law, Dr. James Brown-Scott. The aspect of the work which has suffered least from the war is its labors in the sphere of international law, due undoubtedly to the fact that practically all who think upon the problems of war and peace realize that there are "but two alternatives for the world to choose between—i. e., disorganization and chaos or order according to law."

There were 70,176 books and pamphlets distributed free during the fourteen months following Jan. 1, 1920, bringing the total free distribution from the date of the organization up to 566,473 copies. There are 723 institutions known as depository libraries, to which are sent all publications as they are issued. Its library contains over 17,000 catalogued volumes and pamphlets. It maintains an Advisory Council in Europe, supports the Institute of International Education in this country, and finances the American Association of International Conciliation. It has an Inter-American Division, under the auspices of which is issued the magazine *Inter-America*. It contributes to the work of the American Peace Society. Under the general editorship of James T. Shotwell, the Endowment is working upon an economic and social history of the World War. The report also devotes considerable space to the labors in behalf of a court of international justice.

AMERICAN PEACE SOCIETY (Colorado Building, Washington D. C.). At the annual meeting of the Board of Directors May 29, 1920, the Society expressed its "cordial approval and warm appreciation" of the plan to appoint a committee of international jurists to submit a project for the organization of a Permanent Court of International Justice. The Secretary, both in his work as Secretary and as Editor of the *Advocate of Peace* did everything in his power to promote

that project. The report of the Society sets forth in detail that the advisory committee of ten jurists met at The Hague from June 16 to July 24. They submitted a draft scheme of sixty-two articles relating to the organization, competence, and procedure of a Permanent Court of International Justice, this court to be in addition to the Court of Arbitration organized by The Hague Conferences of 1899 and 1907, and also in addition to the special tribunals of arbitration to which states are always at liberty to submit their disputes. The draft scheme was submitted by the advisory committee to the Council of the League of Nations at its eighth session, held at San Sebastian, Spain, early in August. The Council sent the project, with an explanatory report, to the members of the League. At the tenth session of the Council, held in Brussels, in October, they approved the project, but eliminated the plan for obligatory jurisdiction, modifying it also in other respects. Later they referred it to the Assembly of the League, meeting at Geneva, in November and December. The Assembly referred the matter to a special commission known as "Commission Three," for consideration and report. December 10, this commission reported back to the Assembly, submitting, with its approval, the project substantially as changed and recommended by the Council. On December 13, the Assembly discussed and adopted the project practically as reported by the Commission.

Thus the net result of the labors of the Advisory Committee of Jurists, the Council, and the Assembly of the League of Nations, is that a plan was submitted to the nations, members of the League of Nations, for the establishment of a new court of arbitration, such as already exists at The Hague, with the additional provision, however, that, if adopted, the court will have a permanent body of judges.

In agreeing upon a plan for the selection of judges the difficulty facing The Hague Conference of 1907 relative to the matter of the court has been met and overcome. This step, albeit a short one, is a movement in an upward direction. The Assembly of the League of Nations refused to approve the recommendation of the Committee of Jurists that another conference of the nations, in continuation of the first two conferences at The Hague, be held as soon as practicable. It refused to examine the plan for a High Court of International Justice competent to try crimes against international public order; or to aid in the promotion of the work of the Academy of International Law founded at The Hague in 1913; or to adopt the project for an International Court of Justice backed by obligatory jurisdiction.

During the year the *Advocate of Peace* has grown in size and influence. For the first time in its history it appears as a magazine of forty pages, eight pages larger than five years ago and twenty pages larger than in 1911.

The *International Peace Year-Book* for 1921 appeared from the offices of the National Peace Council (72 Chambers, Vernon Place, Southampton Road, W. C. I., London), edited by F. F. Pollard, Secretary to the Council. It contains a general directory of the societies engaged especially in the promotion of international peace, and therefore makes any extended statement about the various agencies working for international peace unnecessary for the purposes of this report.

The American Peace Society formally restated its position on May 27 declaring that the voluntary union of states and their coöperation for the attainment of common ideals can only be effective if, and only so far as, "The rules of conduct governing individual relations between citizens or subjects of a civilized State are equally applicable as between enlightened nations"; that the rules of conduct governing individual relations, and which must needs be expressed in terms of international law, relate to "the enjoyment of life and liberty with the means of acquiring and possessing property, and pursuing and obtaining happiness and safety"; and that these concepts, which are the very life and breadth of reason and justice, upon which the Law of Nations is founded, must be a chief concern of nations, inasmuch as "justice" and its administration, "is the great interest of man on earth."

It therefore declared for an international agreement to institute Conferences of Nations, to meet at stated intervals, in continuation of the first two conferences of The Hague; and to restate and amend, reconcile and clarify, extend and advance the rules of international law which are indispensable to the permanent establishment and the successful administration of justice between and among nations.

Also to convoke, as soon as practicable, a conference for the advancement of international law; to provide for its organization outside of the domination of any one nation or any limited group of nations; and to establish an Administrative Council to be composed of the diplomatic representatives accredited to the government of the state in which the conference for the advancement of international law convenes, which representatives shall, in addition to their ordinary functions as diplomatic agents, represent the common interests of the nations during the interval between successive conferences; and to authorize the Administrative Council to appoint, outside its own members, an executive committee or secretary's office to perform such duties as the conference for the advancement of international law, or the nations shall from time to time prescribe; and to provide that this Council employ good offices, mediation, and friendly composition wherever feasible and practicable, in their own disputes, and to urge their employment wherever feasible and practicable, in disputes between other nations; and to create a Council of Conciliation of limited membership, with power on behalf of the nations in dispute to add to its members, to consider and to report upon such questions of a non-justiciable character, the settlement whereof is not otherwise prescribed, which shall from time to time be submitted to the Council of Conciliation, either by the powers in dispute, or by the Administrative Council; and to arbitrate differences of an international character not otherwise provided for, and in the absence of an agreement to the contrary, to submit them to the Permanent Court of Arbitration at The Hague, in order that they may be adjusted upon a basis of respect for law; with the understanding that disputes of a justiciable nature may likewise be referred to the Permanent Court of Arbitration, when the parties in controversy prefer to have their differences settled by judges of their own choice, appointed for the occasion.

This agreement should also provide for the en-

largement from time to time of the obligatory jurisdiction of the Permanent Court of International Justice, by framing rules of law in the conferences for the advancement of international law, to be applied by the court for the decision of questions which fall either beyond its present obligatory jurisdiction, or which nations have not hitherto submitted to judicial decision.

THE WORLD PEACE FOUNDATION (40 Mount Vernon St., Boston) during 1921 concentrated its work on the problems of armament and the League of Nations. About December, 1920, it was decided that the former offered the best contact with the American mind in the general field of international relations. Preparation of material on the subject proceeded and in the spring it seemed to the Foundation authorities that the time was ripe for a public demonstration in favor of the curtailment of armament. A proposal for an Armament Sunday was made to the Church Peace Union and was readily agreed upon. The Foundation shared the necessary expenses with the union, which took charge of securing appeals from the Roman Catholic, Protestant, and Jewish bodies to their constituent clergy. The appeal went to 120,000 congregations from which there was a remarkably general response on June 5. More than 20,000 clergymen joined in a single petition to the President to "call a conference of the leading nations on reduction of armaments at the earliest possible date." The petition was presented to the President on June 22. Congressional action in the same sense had undoubtedly been affected by the expression of public opinion. On July 10, the President announced to the Great Powers that he intended to issue to them a formal invitation to meet in a conference to discuss the limitation of armament and Far Eastern problems.

During the year the Foundation has contributed to the support of the League of Nations News Bureau, which is engaged in supplying the facts concerning the activities of the League to the American press. By a contract with the Secretariat of the League at Geneva the Foundation is the American distributing agent of the League of Nations publications. The Foundation throughout the year continued the publication of its periodical entitled *A League of Nations*, the monograph numbers of which have been on the following subjects: Volume IV, 1921. 1. The First Assembly of the League of Nations (double number). 2. "The Staggering Burden of Armament." Statistical examination of the cost of war; new implements and the horrors they portend; American responsibility; value of battleships in modern warfare; purposes of American naval policy; disarmament of ex-enemy powers; practical solutions. 3. Permanent Court of International Justice. Protocol of Signature, Optional Clause, and Statute. Judges of the Court. 4. "The Staggering Burden of Armament." II. What America Has Spent for War and Peace. Previous Plans for Limitation. 5. Washington Agreement on Capital Ships. Disarmament on the Great Lakes. Unfortified Frontiers. 6. German Reparation.

THE CHURCH PEACE UNION (70 Fifth Avenue, New York) regarded the work it did during 1921 as the most significant in its history and that the organization of the office proved its efficiency. More organizations and groups have looked to it for help than ever before.

It seemed wise to take no action in regard to the League of Nations that could be interpreted as propaganda for or against any particular scheme or existing organization,—the tacit understanding being that the Union having put itself on record as being in favor of the United States joining the League of Nations, accepted Mr. Harding and his advisors' promise that they intended to bring us into some relation with the other nations of the world.

At the annual meeting in 1920, a committee on disarmament was appointed which it is felt had considerable to do with the influencing of public opinion, and bringing about the calling of the Washington Conference.

The Union was represented in a special mission to Mexico by Dr. Francis E. Clark, one of its Trustees, who met with Bishop Thirkfield and other leaders who know the situation. It has not seemed wise up to the present to send a formal commission to Mexico. What is true in regard to Mexico is also true in regard to Haiti. The Secretary of the Union visited Spain and Portugal during the summer, and while there held extensive conferences with various church leaders. He is firmly of the conviction that this whole problem of Mexico, Central, and South America and the adjacent Islands is one of growing importance in any attempt to bring about better international relations and that the Spanish language and Spanish culture is assuming a new significance in the world.

In commenting on the work of religious and racial minorities the Secretary of the Union (the Rev. Henry A. Atkinson) said, "There is a growing responsibility in this field. We have formed relationships with several international groups dealing with the same questions. Inasmuch as the racial and religious problems are so closely related, we are finding means of active coöperation with the International Society for the Protection of Native Races. There is one difficulty in this type of work that we are seeking to obviate, and that is that the problems are so tremendous and appeal so strongly to all that whatever we do must be done in relation to the other tasks we have been handling, for should we undertake to deal with race relationship as such and protection of minorities, racial or religious, in anything like an adequate way it would use up all of our energies and our resources. I feel that it is essential for us to establish some basis of judgment by which we can determine what questions may properly be considered as falling within the province of our organization, and what proportion of our time shall be given to each. We are trying to establish this basis, by asking these questions: Will a solution of the problem involved help to establish international friendship, and does it promote that justice and goodwill upon which friendship must be based? If the answers to these questions are affirmative, then we feel that we are justified in interesting ourselves in the subject."

On the subject of "Liberty" the Secretary said: "This is the last item in our programme. We have made no particular efforts this year to carry out the ideals embodied in this section of the programme. It has seemed to us that in dealing with other problems we have involved the substance of this section. As we have moved away from war many of those restrictions which curtail liberty have been removed, and others have been greatly

ameliorated. We are so closely in touch with organisations and agencies with practical and sane programmes that are interested in developing the ideals of liberty and freedom, that we feel that if a crisis should arise, we could at once assert our influence, and strength in a campaign that would result in great good. It seems to me that fuller liberty is gained by the wise use of that liberty now exercised in common. As we move away from the war with its hate, its misunderstanding, and its propaganda much of which grew out of the need for national preservation, we will find an opportunity for exercising more liberty and in that exercise will develop the newer forms of freedom."

During 1921 two conferences were held in Europe—both at Geneva, Switzerland, one in April and the other in September. The second Conference met September 13 to 16. The meeting was said to be by far the best that has been held by this organization. There were twenty-three nations represented by thirty-eight official delegates of the Alliance. Plans for the future were discussed and important measures decided. Perhaps the greatest achievement was in the formulation of a basis of agreement between the French and German churches. The question of coöperation between these two groups has been a source of difficulty at every meeting. Arrangements were made at this meeting for the holding of an Annual World Conference at Copenhagen, Denmark, in August, 1922, and a plan tentatively adopted for the calling of a World Conference of Religions to be held at The Hague probably in 1927. The World Alliance has continued to grow here in America. There are now over 2000 paying members.

The Interchange Committee was active throughout the year, and was instrumental in finding places for many of the men who attended the World Conference of the Presbyterian and Reformed Churches. For 1922 this Commission proposes an exchange, which has already been arranged between Dr. Jefferson of the Broadway Tabernacle and Dr. Norwood of the City Temple, London.

A new type of coöperation developed between the Church Peace Union and the World Peace Foundation. These two bodies are dealing with people who have the same ideals and very much the same viewpoint. The World Peace Foundation does its principal work through the universities and colleges; the Union through the churches and other religious organizations, so that in many points the same material and the same speakers can be used to advantage.

A large part of the work of the Associate Secretary during 1921 was done in connection with the Committee on Reduction of Armaments, which early in the year voted to call a conference to consider the problem of armaments and preparations commenced immediately for the meeting to be held in conjunction with the Annual Meeting of the World Alliance. On May 17-19 a great congress on Reduction of Armaments was held in Chicago. Over four hundred official delegates were present from twenty States. Twenty denominations were represented, the American Chamber of Commerce, the American Federation of Labor, the League of Women Voters, the Y. M. C. A., the Y. W. C. A., and many clubs sent delegates. There were eight sessions.

During May formal statements were issued by

the Federal Council of Churches of Christ in America, the National Catholic Welfare Council, the Central Conference of American Rabbis, and the United Synagogues of America. Each statement urged the calling of a conference of the leading nations on Reduction of Armaments. These actions of the great religious bodies were conveyed by the Church Peace Union to 120,000 preachers asking them to present the question on Sunday, June 5, to their congregations. Thousands of sermons were preached, some by the most outstanding preachers in America, calling the congregations to action. Resolutions passed by congregations went in large numbers to Washington. In the same envelope with the letters to the clergymen a petition which read as follows was inclosed:—"We, the undersigned clergymen urge the President and the Congress of the United States to call a conference of the leading nations on Reduction of Armaments at the earliest possible date." Only 208 clergymen refused to affix their signatures. Twenty thousand five hundred and three favoring the proposal signed the petition. The names when bound made a volume of 410 pages. On June 22 this petition was presented to President Harding.

The signers of the petition were divided by denominations as follows:

Methodists (Epls.)	4,950
Baptists	3,650
Presbyterians	1,950
Lutherans	1,900
Methodists (South)	1,500
Episcopalians	1,400
Disciples of Christ	1,400
Congregationalists	1,150
Roman Catholics	950
Unitarians	150
Friends	50
Jews	53
Name of Denomination not given	1,400
	20,503

The geographical list of States is as follows:—

New York	1,690
Pennsylvania	1,636
Ohio	1,126
Illinois	995
Massachusetts	844
Texas	812
Iowa	827
California	744
Minnesota	722
Missouri	710
Kansas	695
New Jersey	671
Michigan	637
Georgia	590
Indiana	564
North Carolina	560
Virginia	595
Kentucky	473
Nebraska	467
Wisconsin	464
Tennessee	450
Alabama	358
South Carolina	354
Washington	346
Maryland	344
Oklahoma	343
Connecticut	317
Mississippi	316
Arkansas	307
W. Virginia	272
Florida	267
Oregon	234
Colorado	228
South Dakota	224
North Dakota	205
Maine	199

New Hampshire.....	187
Louisiana.....	189
Vermont.....	155
Montana.....	120
Washington, D. C.....	119
Rhode Island.....	109
Idaho.....	90
New Mexico.....	69
Arizona.....	62
Delaware.....	57
Wyoming.....	43
Utah.....	29
Nevada.....	11

THE POLICY AND PROGRAMME OF THE FEDERAL COUNCIL OF THE CHURCHES OF CHRIST. The Executive Committee of the Council at its annual meetings in Chicago in December, recorded on behalf of the churches their solemn and reverent thanksgiving to God for the Conference on Limitation of Armament. In it they "recognized His answer to the fervent prayers of millions of Christians throughout this and many other lands," and "rejoiced in the splendid achievements of the Conference already secured." They were declared to be, however, but the first steps toward a warless world. With a view to that goal, it made the following

DECLARATION

1. We realize that as churches it is not for us to define in detail the political methods and institutions by which the scourge of war shall be ended and the fear of war shall be banished forever from civilized and Christian nations. The determination of such details must be left to diplomats, jurists and legislators.

2. But we maintain with firm conviction that it is the right and the duty of the church to declare in no doubtful terms the moral principles that are involved in international life, and to insist that our lawmakers, our diplomats, and all those who represent our nation in its international relations, shall observe these principles with utmost care. We insist that the main issue shall not be either evaded or obscured by discussion of details.

3. We hold that the moral principles of international life are the most important of all the so-called "vital interests" of every nation.

4. The "vital interests" are of such importance to the life of churches and nations that every congregation of every church in every land should co-operate for the achievement of a warless world. The world war was won only by international unity of purpose and action. A warless world can be achieved only by like unity of millions of peace-makers.

5. We recognize with deep satisfaction the new spirit of unity and mutual consideration that has sprung up between the nations represented at the conference. This spirit we regard as a greater importance and as giving more hope for the future than any of the specific agreements.

6. The Conference on Limitation of Armament has indeed made a good beginning. We deeply rejoice in the agreements for a radical reduction of navies, for the ten-year naval holiday, for the ten-year four-power agreement to maintain peace in the Pacific, and for the steps taken looking toward a real solution of China's pressing problems.

7. But as a nation we must press on to matters of still greater importance and still more serious difficulty. Capital ships have largely lost their significance. Provision has not yet been made for the general reduction of land armament. Chemical and aeroplane and submarine warfare threatens the world. These new weapons have created new problems for the entire world of the gravest character. How can they be abolished, or even limited, so long as competitive armament and war are recognized as legitimate methods by which civilized peoples may seek to secure objectives? War itself must be outlawed.

8. We believe there is one way and only one way to outlaw war. We must first establish a peace system. To take the place of competitive war preparations and recurring wars, we must create the institutions and the agencies of peace. Methods must be found by which to assure full security, equal justice and fair economic opportunity for all nations and all peoples alike.

9. Mere disarmament by itself alone will not stop war. Only the firm establishment of the institutions of justice and of liberty under law, maintained by effective sanctions at the hands of law-abiding and peace-loving nations can possibly banish war from this war-cursed world. The most urgent need of mankind to-day is the speedy establishment of these international institutions for justice, for security and for fair

opportunity. These are essential prerequisites to permanent peace.

10. We believe that peculiar duties and responsibilities rest upon Christians in this and all other lands for the establishment of these institutions. It is for Christian pastors and preachers everywhere to teach these truths to the people and through the Grace of God to create that heart and that will in each nation, without which disarmament is only a beautiful rainbow in the sky and a warless world is impossible.

11. We believe that the United States has moral obligations to the nations of Europe. Neither France nor any other nation should ever be exposed to the wrong and the tragedy of invasion. We believe that adequate protection can be given to nations only by effective international guarantees.

12. In the light of these considerations, this Federal Council of the Churches of Christ in America adopts for itself and recommends to the churches the following statement of ideals, of policy and of program:

I. INTERNATIONAL IDEALS OF THE CHURCHES OF CHRIST

1. WE BELIEVE that nations no less than individuals are subject to God's immutable moral laws.

2. WE BELIEVE that nations achieve true welfare, greatness and honor only through just dealing and unselfish service.

3. WE BELIEVE that nations that regard themselves as Christian have special international obligations.

4. WE BELIEVE that the spirit of Christian brotherliness can remove every unjust barrier of trade, color, creed and race.

5. WE BELIEVE that CHRISTIAN patriotism demands the practice of goodwill between nations.

6. WE BELIEVE that international policies should secure equal justice for all races.

7. WE BELIEVE that all nations should associate themselves permanently for world peace and goodwill.

8. WE BELIEVE in international law, and in the universal use of international courts of justice and boards of arbitration.

9. WE BELIEVE in a sweeping reduction of armaments by all nations.

10. WE BELIEVE in a warless world and dedicate ourselves to its achievement.

II. THE GENERAL OBLIGATION OF AMERICA TO CO-OPERATE IN THE ESTABLISHMENT OF A WORLD PEACE SYSTEM

1. We believe that the government of the United States should associate itself promptly with the other nations of the world to establish permanent institutions for the formation of international law, for the effective operation of the International Court of Justice and boards of arbitration and conciliation, for the assurance to law-abiding and peace-loving nations of security from attack and spoliation by any lawless and aggressive nation and for the provision of fair treatment and equal economic opportunity to all individual citizens of law-abiding and peace-loving nations.

2. We believe that only by these institutions and agencies will it be possible and practicable to abolish the menace to the entire human race of submarines, of aeroplanes, and of poison gases.

3. We believe, further, that the reconstruction of the shattered institutions of production, of exchange, of trade, and of credit, all so essential to the peace and prosperity of the nations, is possible only when the feverish fears and preparations for possible war are completely abandoned because of the successful functioning of the institutions of an effective world peace system.

4. We take the above stand remembering:

a. That practically every important nation in the world has committed itself to the idea of a permanent organization of the nations for world peace, and many of them have associated themselves in a League of Nations for that purpose.

b. That President Harding has repeatedly committed himself and his administration to a permanent association of the nations for world peace, renewed in his recent address at the opening of the Washington Conference in the memorable words that the United States cooperating with other nations, desires "To do that nobler thing which no nation can do alone."

5. We believe that the time has come for American public opinion to express unmistakably to Congress its emphatic support of President Harding and of the Administration in making adequate pledges and in giving satisfactory guarantees that the United States will take its full share of responsibility in international tasks and obligations.

6. We advocate the foregoing policy, remembering the numerous actions of the Federal Council from its very first organization in 1908 and repeated at practically every annual meeting since, urging the creation of a permanent organization of the nations for world peace, which policy has also been repeatedly expressed in numberless actions of our constituent bodies during the past decade.

7. We reject with indignation a policy of taking all possible economic advantages in all parts of the world while shirking international responsibilities and obligations.

This declaration was adopted at the annual meeting of the Council, Dec. 16, 1921.

AMERICAN SCHOOL CITIZENSHIP LEAGUE (405 Marlborough Street, Boston, Mass.). Teachers who realize the importance of teaching the right kind of citizenship to young people, turn to the League for guidance. The most important piece of work which it accomplished during 1921 was the publishing of *An American Citizenship Course in United States History, with Type Studies*, five volumes, edited by the Secretary and published by Charles Scribner's Sons, New York. This course is the official report of the History Committee of the American School Citizenship League (Wilbur F. Gordy, *Chairman*, Hartford, Conn.; Philander P. Claxton, former U. S. Commissioner of Education; James H. Van Sickle, Superintendent of Schools, Springfield, Mass.; Charles E. Chadsey, Dean, College of Education, University of Illinois; Mr. and Mrs. John W. Hall, University of Nevada; and Mrs. Fannie Fern Andrews, *Secretary*). The outstanding feature of the course is the Type Studies, as it is the first time that such studies in history have been published.

The League issued a fifteen-page pamphlet stating its aims as follows:

I. To define the meaning of American Citizenship.

II. To stimulate the teaching of American citizenship in the schools of the United States.

III. To prepare material for the use of teachers.

IV. To cooperate with educational agencies in foreign countries for the promotion of international understanding.

The League extended its list of officers so that now nearly every leading educator in the country is counted among its Executive Committee, Vice-Presidents, and Counselors.

Its World Essay Contest becomes more far-reaching each year. The 1921 contest closed June 1, and the subjects of the essays were, for seniors in normal schools: "What Education can do to Secure Cooperation as against Competition between Nations"; and for seniors in secondary schools: "The Essential Foundations of a Cooperating World." The prizes—seventy-five, fifty, and twenty-five dollars in each set—were awarded as follows:

Normal School Set

First prize.—Miss Lucile Heath, State Normal School, Towson, Md.

Second prize.—Miss Grace M. Tull, State Normal School, Towson, Md.

Third prize.—Miss Eva B. Weber, State Normal School, Millersville, Pa.

Secondary School Set

First prize.—Miss Margaret R. Martin, Hollywood High School, Hollywood, Calif.

Second prize.—Miss Amy L. Spencer, Cranston High School, Auburn, R. I.

Third prize.—Willis Keys, Tyler County High School, Middlebourne, W. Va.

A new line of cooperation with educational agencies in foreign countries was undertaken. Through cooperation with the British League of Nations Union, the League has placed a large number of normal, secondary, and elementary schools, both public and private, in correspondence with schools of similar standing in Great Britain.

The League held joint meetings or provided one or more speakers on the programme of organizations and departments meeting in Atlantic City with the Department of Superintendence of the National Education Association. A representative of the League attended the summer meeting of the Association in Des Moines, where a definite plan of cooperation was effected through the appointment of a Committee to cooperate with the League. The Committee on Citizenship and Character Education and the Committee on the Teaching of Democracy, both of the National Council of Education, recommended cooperation with the American School Citizenship League. The League held a very successful conference in Boston, in which it had the cooperation of the Governor, the Mayor, the State Commissioner of Education, the Superintendent of Schools, the Chamber of Commerce, and leaders in educational and civic welfare spheres.

The League has cooperated as closely as possible with the Washington Conference on the Limitation of Armaments. It has distributed thirty thousand copies of Katrina Trask's *The Conquering Army* among schools, churches, clubs, etc., to be read during the Washington Conference; it sent out posters, cards, and literature to schools, especially for use in preparing programmes for Armistice Day; and it announced its World Essay Contest for the year 1921-22 during the Washington Conference, as work that would be laying the foundation for that broad outlook which animated the Conference and which we all hope will emanate permanently from the Conference. It is definitely trying to educate the youth of the country to appreciate the spirit which brought this Conference together.

THE WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM (formerly Woman's Peace Party), through its national membership, worked for the resolution calling for a Conference on Disarmament. It employed the services of Miss Margaret Crook, a graduate of the University of London, England, who toured the Eastern States, speaking to groups of students in colleges and high schools and teachers' organizations. In the interest of the work of the W. I. L., Frau Hertzska of Austria and Mrs. Pethick Lawrence of England came to the United States and spoke in many cities. The League raised \$3048 for Mr. Hoover's fund for the starving children of Central Europe.

In July, 1921, the Biennial Congress of the organization was held in Vienna and was attended by women from twenty-eight countries, in all of which are maintained national centres of the W. I. L. Twenty women from the United States went to this Congress and Jane Addams was again elected International President. The vice-presidents and other officers are as follows: Emily G. Balch, Secretary-Treasurer, U. S. A.; Gabrielle Cuchene, France; Yella Hertzska, Austria; Lida Gustava Heymann, Vice-President, Germany; Martha Larsen, Norway; Catherine Marshall, Great Britain; C. Ramondt-Hirschmann, Assistant Secretary, Holland; H. M. Swanwick, Vice-President, Great Britain; Lucie Dejardin, Belgium.

A summer school was held at Salsburg during the first two weeks of August with an attendance of 300.

The National office was moved from New York to 732 17th Street, N. W., Washington, D. C.,

in November, and Mrs. George Talbot Odell became Acting National Chairman, superseding Miss Mabel Hyde Kittredge, resigned.

On Dec. 10, 1921, a national Conference was held in Washington, attended by women from many States, at which Jane Addams presided and Emily Balch reported on the Vienna Congress and work of the International office at Geneva. This Conference was followed by a large mass meeting, on December 11, which was addressed by Miss Addams, Miss Balch, Mrs. Florence Kelley, and several women from foreign countries.

The League also held meetings during the year for the recognition of Soviet Russia and amnesty for political prisoners.

The League issues bulletins from its International office at Geneva, Switzerland, and from its national headquarters in the United States, France, Great Britain, and other countries.

THE LEAGUE TO ENFORCE PEACE (5 Park Square, Boston, Mass.), did not carry on any general campaign during 1921. It did, however, circulate a good deal of literature and answered many letters. An organization that has carried on such large activities as has the League finds it impossible to shut its doors, even though it does not think it wise for the time being to strike out vigorously. It is quite possible that it may renew its activities during 1922.

THE WORLD'S COURT LEAGUE was, in 1919, merged in the League of Nations Union. For more than a year this Union has been for the most part inactive, on account of poverty. During 1921 the only publication was the *First Year Book of the League of Nations*, by the Union's Secretary, Charles H. Levermore.

LEAGUE OF NATIONS SOCIETY IN CANADA. A number of men in different parts of Canada, feeling the need of some organization to provide information concerning the League of Nations and its work, and generally in reference to international problems as they affect Canadian interests, held a meeting in Ottawa on May 31, 1921, to consider the formation of such a Society. The following joined in signing the invitation to the meeting: General Sir Arthur Currie, K. C. B., McGill University; G. S. Campbell, Halifax, N. S.; Colonel C. W. Peck, V. C., M. P.; Sir Robert Falconer, University of Toronto; Hon. H. S. Beland, M. P., Ottawa; Tom Moore, President, Trades and Labor Congress; Dr. Walter C. Murray, President, University of Saskatchewan; Leonard P. D. Tilley, K. C., St. John, N. B.; Hume Cronyn, M. P., London, Ont.; Isaac Pitblado, K. C., Winnipeg, Man.; Senator C. P. Beaubien, Montreal; Dr. H. M. Tory, President, University of Alberta.

In response to this invitation, about 250 people met and unanimously decided to organize a League of Nations Society in Canada. His Excellency, the Duke of Devonshire, the then Governor-General, presided, and it was unanimously decided to proceed to the organization of a League of Nations Society in Canada with the following objects:

1. To promote international peace; 2. To furnish information about the League of Nations, its principles, organization, and work; 3. To study international problems and Canada's relation thereto as a member of the British Commonwealth and of the League of Nations; 4. To foster mutual understanding, good will, and the habits

of coöperation between the people of Canada and of other countries, in accordance with the spirit of the League of Nations; 5. To promote the establishment of provincial or local associations, clubs, or other bodies having like objects, and to coöperate with any existing organizations for such purposes.

Mr. H. D. Robertson has been appointed General Secretary, and the office of the Society has been opened at 106 McKinnon Building, Toronto.

THE NOBEL PEACE PRIZE AWARD FOR 1921. Hjalmar Branting, the Premier of Sweden, and Christian L. Lange of Norway, the Secretary of the Interparliamentary Union, between whom the Nobel peace prize for 1921 is divided, have been consistent advocates of disarmament. They are the type of men from countries not having rank with the great military powers who have been pioneers in striving to teach Europe to rid itself of top-heavy armaments. Both as a journalist and as a leader of the Socialist Party, Premier Branting has been a power in the politics of Sweden. To his influence in large part was due the success of the peace negotiations through which the severance of Norway was arranged without appeal to arms. His rise to the Premiership came in 1920 as a result of the popular protest against the domination of the Government by a militaristic aristocracy. Late in 1921 the Socialist Party was again returned to power in the Swedish elections. Lange became General Secretary of the Interparliamentary Union in 1900. He has been professor of history in the Nobel Institute of Christiania and represented Norway at the second Hague conference in 1907. Both represent their respective countries in the League of Nations, which is in keeping with their records in the service of peace. Branting as the active political leader in Sweden and Lange as the scholar and writer of Norway, have labored to achieve the same practical end, the immediate reduction of armaments by agreement of the nations.

AMERICAN ASSOCIATION FOR INTERNATIONAL CONCILIATION (Sub-Station 84, New York, N. Y.) continued to print and circulate documents giving information as to the progress of the international movement. These publications continue to be non-partisan; their only aim being to educate public opinion. In addition to this the Association has continued its work among universities and colleges through International Relations Clubs under the direction of the director of the Institute for International Education (q. v.), which also emphasizes the educative feature of the work. Following is a list of the pamphlets published during 1920-21:

155. Notes Exchanged on the Russian-Polish Situation by the United States, France, and Poland. October, 1920.

156. Presentation of the Saint Gaudens Statue of Lincoln to the British people, July 28, 1920. November, 1920.

157. Draft Scheme of Permanent Court of International Justice, with a review by James Brown-Scott. December, 1920.

158. The Communist Party in Russia and Its Relation to the Third International and to the Russian Soviets. Part I. January, 1921.

159. The Communist Party in Russia and Its Relation to the Third International and to the Russian Soviets. Part II. February, 1921.

160. Central European Relief, by Herbert Hoover; Relief for Europe, by Herbert Hoover; Intervention on Behalf of the Children in Countries Affected by the War, by the Swiss Delegation to the Assembly of the League of Nations; The Typhus Epidemic in Central Europe, by the Right Hon. A. J. Balfour; Report of the Special Commission on Typhus in

Poland, to the Assembly of the League of Nations. March, 1921.

161. Disarmament in its Relation to the Naval Policy and the Naval Building Programme of the United States, by Arthur H. Pollen. April, 1921.

162. Addresses on German Reparation by the Rt. Hon. David Lloyd George and Dr. Walter Simons, London, March 3 and 7, 1921. May, 1921.

163. The Fiftieth Anniversary of the French Republic. June, 1921.

164. Convention for the Control of the Trade in Arms and Ammunition, and Protocol, signed at Saint-Germain-En-Laye, September 10, 1919. July, 1921.

165. Addresses at the Fifteenth Annual Meeting of the American Society of International Law, by the Hon. Elihu Root. August, 1921.

166. Constitution of the Permanent Mandates Commission; Terms of the "C" Mandates; Franco-British Convention of Dec. 23, 1920; Correspondence between Great Britain and the United States Respecting Economic Rights in the Mandated Territories; The San Remo Oil Agreement. September, 1921.

167. Present Problems of the Commonwealth of British Nations: Conference of Prime Ministers and Representatives of the United Kingdom, the Dominions and India, held in June, July, and August. October, 1921.

168. Relations between Great Britain and Ireland: Proposals of the British Government, July 20, 1921, and Correspondence between Mr. Lloyd George and Mr. De Valera. November, 1921.

169. Treaties of Peace between the United States and Germany, Austria, and Hungary. December, 1921.

THE INSTITUTE OF INTERNATIONAL EDUCATION (419 West 117th Street, New York). On account of the growth of more intimate educational relations between Italy and the United States, and Spain and the United States, there have been established Spanish and Italian Bureaus. In addition to the representatives already secured in foreign countries, the Institute during its second year of existence has become represented in South Africa, Norway, Australia, and Denmark. It has also entered into active coöperation with other organizations having educational relations with foreign countries, such as the Pan-American Union, the American-Scandinavian Foundation, the Italy-America Society, the Committee on Friendly Relations, and the Council on Foreign Relations. The Institute as a clearing house of information and advice on international educational matters has been able to render these organizations effective service. At the request of the Administrative Board of the Institute, the Carnegie Endowment for International Peace allotted \$12,500 for grants to professors on leave of absence.

Assisting American professors to teach in foreign universities was but one way in which the Institute attempted to stimulate a better understanding between the United States and other countries. It has circulated during the past year a number of foreign professors of distinction among the colleges and universities of the country. Among those who have lectured under the auspices of the Institute in this way are Baron S. A. Korff, formerly Professor of International Law and Diplomacy at the University of Helsingfors, Finland; Professor Victor Andres Belaunde, Professor of International Law and Political Science at the University of San Marcos, Lima, Peru; Professor Raoul Ramirez, Chilean Exchange Professor of Spanish American History from the University of Chile, Santiago, Chile; Professor Jacques Hadamard, Professor de Mécanique Analytique et de Mécanique Celeste au Collège de France, Paris; and Professor Raffaello Piccoli of the University of Padua, Italy. Arrangements have already been made to send during the Spring term to a large number of institutions the distinguished scholar and divine, Bishop Nicholai,

Bishop of Serbia; Professor J. Holland Rose, Professor of History at Cambridge University, England, and Doctor E. A. Horne, Professor of Mathematics, University of Patna, India.

An element of importance in the development of international good-will has been the service that the Institute has been able to render to official visitors and missions coming to this country to study our educational conditions. Among the most important of the missions of the past year that have been welcomed and assisted were the Educational Commission from China, headed by the Honorable Hsi Tao Yuan, Vice-Minister of Education, the Japanese Commercial and Educational Mission under Baron Goto, and the mission of distinguished French and English physicians who came to study our methods of medical education.

A service of similar value has been rendered to those seeking educational advice concerning procedure in foreign countries. Sometimes this has been done by the Institute working through other agencies, as when the Director became Chairman of the Committee on Education of the Italy-America Society, and the Associate Director Monroe became Chairman of an Educational Committee on the Near East, and Miss Newcomb became Executive Secretary of the Committee on International Relations of the Association of Collegiate Alumnae. The Institute arranged with the Right Honorable R. A. L. Fisher, of the English Board of Education, for the hospitality extended to the group of teachers sent to England by the Milwaukee Journal during the summer vacation.

During the past year colleges and universities have resumed a normal, postwar state which has made possible an extension of the activity of the International Relations Clubs established in them. The Institute has continued the policy of organizing the Clubs by preference in the smaller non-urban colleges where a multiplicity of student activities does not exist, and where the need for library material and outside speakers is greatest. The forms of coöperation outlined in that Report continue to be the basis of the Institute's policy; viz., supplying to the clubs books, syllabi, pamphlet and periodical literature bearing upon the subjects studied, and sending distinguished speakers, foreign and American.

The following syllabi were especially prepared for the Clubs during the past year:

I. "Outline of the Covenant of the League of Nations," by Professor Louis K. Manley of the University of Pittsburg.

II. "The Past, Present and Future of the Monroe Doctrine," by Professor A. B. Hall of the University of Wisconsin.

III. "The History of Russia from Earliest Times," by Baron S. A. Korff, University of Helsingfors, Finland.

IV. "The Russian Revolution," by Mr. W. W. Pettit, of the American Peace Mission.

V. "The Question of the Balkans," by Professor Clive Day of Yale University.

VI. "Modern Mexican History," by Professor Herbert I. Priestley of the University of California.

The successive numbers of *The Journal of International Relations and of International Conciliation* have been sent to the Clubs with other periodical and pamphlet material.

On Dec. 28, 1920, the annual conference of faculty advisers was held at Washington in conjunction with the American Historical Association and the American Political Science Association.

Since the last Annual Report, Clubs have been founded in the following institutions:

Agnes Scott College, Decatur, Ga.; Allegheny College, Meadville, Pa.; Bates College, Lewiston, Maine; Central College, Fayette, Mo.; Coe College, Cedar Rapids, Iowa; Colorado College, Colorado Springs, Colo.; Drury College, Springfield, Mo.; Fargo College, Fargo, N. D.; Franklin College, Franklin, Ind.; George Peabody College, Nashville, Tenn.; Guilford College, Guilford, N. C.; Hamline College, St. Paul, Minn.; Kingfisher College, Kingfisher, Okla.; Lawrence College, Appleton, Wis.; Lincoln Memorial University, Harrogate, Tenn.; Lindenwood College, St. Charles, Mo.; Meredith College, Raleigh, N. C.; Mills College, Oakland, Calif.; Milwaukee-Downer College, Milwaukee, Wis.; Mt. Holyoke College, South Hadley, Mass.; North Carolina College for Women, Greensboro, N. C.; Oxford College, Oxford, Ohio; Pacific University, Forest Grove, Ore.; Packer Collegiate Institute, Brooklyn, N. Y.; Pomona College, Claremont, Calif.; Randolph-Macon College for Women, Lynchburg, Va.; Ripon College, Ripon, Wis.; Southern Methodist University, Dallas, Texas; Stephens Junior College, Columbia, Mo.; Teachers College, New York City; Trinity College, Durham, N. Car.; University of Colorado, Boulder, Colo.; University of Denver, University Park, Denver, Colo.; University of Kansas, Lawrence, Kansas; University of Maine, Orono, Maine; University of Michigan, Ann Arbor, Mich.; University of Nebraska, Lincoln, Neb.; University of Redlands, Redlands, Calif.; University of Utah, Salt Lake City, Utah; Wabash College, Crawfordsville, Ind.; Wellesley College, Wellesley, Mass.; Westhampton College, Richmond, Va.; Whitman College, Walla Walla, Wash.

The Institute coöperates with various foundations in making known their scholarships for study in foreign countries to students in American institutions. One of its staff serves on a committee which selects the American girls for the scholarships in lycées offered by the French government, and visits France in the summer to select the French girls who receive scholarships in American colleges. It is from the Institute that the French girls are distributed to their destinations and the American girls leave for Europe. The Institute was glad to coöperate in arranging for an interesting exchange of children's librarians with Belgium. At the request of the Book Committee on Children's Libraries of the Art War Relief, the Director secured free tuition from the New York Public Library and the Pratt Library of Brooklyn, and also a grant of funds from the Commission for Relief in Belgium to aid in defraying the expenses incident to sending an American children's librarian to Brussels and in bringing two Belgium women here next fall to study to become children's librarians. The American Chamber of Commerce of Mexico City has turned over to the Institute for administration the scholarships it established for Mexican students in colleges of the United States. The following is a list, though by no means an exhaustive one, of international scholarships of interest to American students;

Albert Markham Traveling Fellowship (Uni-

versity of Wisconsin); Alice Freeman Palmer Fellowships (Wellesley); American Field Fellowships in French Universities; American-Scandinavian Foundation Fellowships; American School of Classical Studies at Athens; American Academy in Rome.

The Director of the Institute visited a great many of the colleges and universities of the United States during the past year in order better to acquaint their administrative authorities with its aims and activities, and to keep in close touch with the work of the International Relations Clubs. Upon invitation he delivered during the year some twenty-five addresses to various scholarly organizations. Upon the request of Mr. Herbert Hoover and in conjunction with the Director of the American Council on Education and the Secretary of the American University Union in Europe, he formulated and distributed an appeal to the colleges and universities of the country for contributions to aid suffering students and professors in Europe. He sat on committees to report upon the equivalence of degrees between the universities of the United States and those of France and Great Britain respectively. Though his personal influence, he has secured fellowships in various institutions for a number of stranded Russian students. He is serving in an advisory capacity to a considerable number of organizations of an international educational character. He is coöperating with the Italy-America Society in organizing a tour to Italy for American students and instructors next summer. One of the interesting incidents of the tour will be the laying of a bronze memorial wreath on Dante's tomb at Ravenna as a tribute from the institutions of learning in the United States. The Spanish bureau of the Institute is organizing a visit to Madrid of a large group of teachers of Spanish from all over the United States. These teachers will spend next summer in the University of Madrid in perfecting their knowledge of oral Spanish and in the study of Spanish literature and history. A centre for the diffusion of the culture of Spain, Portugal, and the Spanish-American countries, has also been organized under the name of the Instituto de las Espanas.

THE INTERNATIONAL INSTITUTE OF LEGAL AND ECONOMIC INFORMATION is an international enterprise growing out of the public spirit of private citizens in Holland. It was organized in 1918. A number of Dutch jurists, economists, bankers, and business men foresaw the need of an institution capable of supplying at short notice information about the laws and regulations of all countries relating to jurisprudence, to international treaties, and to the existing literature relative to world affairs. They formed a central organization under the name of International Intermediary Institute. Cabinet ministers and other leading men became associated with its management. The aim of the institute developed into an effort to create an international clearing house for scientific, political, legal, economic, and statistical information. Its work is divided into two departments, one dealing with jurisprudence and the other with economics. It publishes quarterly the Bulletin de l'Institut Intermediaire International. The first five numbers of the bulletin, containing about 1000 pages, are in French, but it is intended to issue it also in English. The institute plans to publish the *Conventions of the Hague*

(1902 and 1905) on *International Private Law*. A report of recent international treaties is under way.

AMERICAN UNION AGAINST MILITARISM (Westory Building, Washington, D. C.) confined its efforts during 1921 to working for disarmament. It first urged the backing of Senator Borah in his fight for a conference of the three great naval Powers. Then when this was called, joining with other groups to secure results. While it has coöperated with the groups calling themselves disarmament committees, its primary task, until complete disarmament is attained, is reporting and suggesting means of combating militaristic tendencies. To this end it keeps track of military and naval legislation in Congress. It has from time to time issued pamphlets dealing with various phases of its purposes. Henry R. Mussey is the new Chairman and Belle Rankin is the new Executive Secretary.

THE FELLOWSHIP OF RECONCILIATION (108 Lexington Avenue, New York City), during 1921 has been working along the usual lines, endeavoring to get people to take their Christian principles seriously as a working basis for everyday life, in business, politics, international relations, and in racial relations. Among the special activities might be mentioned a letter which was sent to some 120,000 ministers in this country accompanied by a pamphlet by Dr. C. J. Cadoux of Oxford entitled, *An Appeal to the People of the Christian Church*, it being an argument against war from the point of view of the Gospel. It also issued a paper dealing with the Unemployment Problem prepared by a Fellowship committee, headed by A. J. Muste, head of Brookwood Labor College. Another publication was a pamphlet, *When a Christian Questions Himself—What Shall I Do With My Capital and Income?* by Edward W. Evans.

The Fellowship published and widely distributed a pamphlet by John Nevin Sayre entitled, *Movement Towards a Christian International*, which aims to apply its convictions constructively, and not to spend itself in mere protest. "To overcome evil," it declares, "may require the use of various forces, when these can be employed consistently with the sanctity of personality and the redemptive purpose of Christ. No literalistic theories of non-resistance, no prohibition of the use of force, no merely negative reformations of any kind are sufficient to cure our social diseases or to eradicate war. The fundamental need is a new discovery of God, a fresh return to the sources of life, and a preparation of men's spirits for the inflow of Divine power."

THE YOUNG DEMOCRACY as a National organization exists no longer except in name; the Philadelphia "unit," as it was formerly called, is all there is left of it. The only activity of the national organization which still exists is a certain publicistic work in connection with the magazine called *The World Tomorrow*. The Philadelphia Young Democracy is still active, and is now conducting meetings every Sunday afternoon in the Broad Street Theater. Its Executive Secretary is Mrs. Esther Dunham, Melrose Avenue, East Lansdowne, Pa.

THE FOREIGN POLICY ASSOCIATION originated in a dinner-discussion group of about fifty editors, publicists, and experienced students of international affairs formed in New York City in the

spring of 1918, for the purpose of "exploring and crystallising latent interest in liberal democratic policies for which America stands in the great war and for which there is no organization at home." Early in its career the group reached the conclusion that two things were absolutely requisite to the development of a sound foreign policy for the United States:

FIRST: Careful study of all sides of every important international question affecting the United States.

SECOND: Communication of the results of such study to as large a number of liberal-minded Americans as possible, to the end that there might be a better public understanding of what our foreign problems are and of how they may be dealt with most effectually.

In the pursuit of these general aims, the group, long before the Paris Peace Conference, came out definitely in favor of the establishment of some sort of international organization, some sort of a league of free and self-determining nations, as a substitute for international anarchy and as an ameliorative of international hatred. To realize the second of these aims, the group resolved itself into the League of Free Nations Association, a membership organization, in November, 1918, with the support and coöperation of a large number of enlightened and public-spirited citizens throughout the country. The Association has steadily labored for the formation and adoption of a liberal and constructive American foreign policy; and the better to express its basic purpose, it adopted in March, 1921, its present name—The Foreign Policy Association.

The Association has always been strictly non-partisan or interpartisan. Working on the theory that public opinion is the permanent controlling agency in a democracy and that it can be sound only when it has informed itself, the Association has no interest to serve, no formula it wishes to impose, no postulate of government it wishes adopted. Anxious that the United States should have an attitude in foreign affairs that protects its own interests, it believes that in the long run a selfish, self-regarding policy is sure to be detrimental, and that a generosity of spirit and of act, a willingness to go halfway and to go first, and to put its confidence in whatever associations it forms, are genuinely in the American interest. Its method is, as far as possible, to enlighten by disclosing facts, by promoting debate, by attempting to develop a public interest in order to offset private interests or the narrow aims of a faction.

Since March, 1920, the Association has published a monthly *Bulletin*, containing stenographic reports of its luncheon-discussions, letters of special interest, and informing comment on current foreign politics. During the Washington Conference, the Association published weekly *News Bulletins* of comment on current developments.

Thirty-seven notable and largely attended luncheons have been held in New York City under the auspices of the Association. At each a special phase of American foreign policy was discussed from different viewpoints,—never in the spirit of partisanship, but always with the idea of getting at the facts. These discussions constitute almost a novelty in American public life and are contributing potently to one of the chief purposes of

the Association—the formation of a liberal and enlightened public opinion on international relations. The whole series has been characterized by freedom of viewpoint and fairness of discussion.

The Association in its original statement of principles, issued in November, 1918, expressed its conviction that the basis of our American demands at the Paris Conference should be a liberal, democratic and inclusive league of nations. During the spring of 1919 it urged upon the American plenipotentiaries at Paris the formation of such an international organisation. While recognising that the Treaty of Versailles and the Covenant of the League of Nations did not measure up to its hopes, the Association nevertheless supported the Covenant with all its strength, urging as long as the subject was being discussed in the Senate, such liberal and interpretative amendments as would tend to make the League more universal and more democratic. The defeat of the Covenant in the Senate only stimulated the Association to further efforts to bring the United States wholeheartedly into some form of continuous and close coöperation with the other nations at the earliest possible moment.

On our relations with Latin-America, especially with Mexico and the Caribbean, the Association has a standing committee of experts. In April, 1921, the Association addressed to Secretary Hughes a carefully drawn brief in the matter of the settlement of the existing disputes between the two countries.

On Russian-American relations the Foreign Policy Association has a sub-committee of fifteen experts who are studying the diplomatic and economic relations of the American Government to Russia. Under its auspices there was compiled in the spring of 1920 a volume of the available diplomatic exchanges between the various Russian governments and our State Department from March, 1917, to March, 1920.

The first plank in the revised "programme for immediate action" adopted by the Association in December, 1920, declared that it would "Oppose the new three-year building programme for the navy as economically unwise, and as making renewal of naval rivalry inevitable; support all measures leading to a joint understanding between Japan, Great Britain, and the United States for a naval holiday; work for the progressive disarmament of all nations."

Since then, the Association has thrown all its weight into the fight for reduction of armaments as a first and obvious step towards better international relations. While there was at that time a feeling against competitive naval building, public sentiment was unorganized, uninformed, and inarticulate. In the educational work of arousing the country to a realization of the tremendous issues at stake, the Association has played its part. A national sub-committee on reduction of armament was formed in April, 1921.

First: To urge President Harding to call an international conference to consider the limitation of naval armament by international agreement.

Second: To urge Congress to postpone final action on the pending naval appropriations until the suggested international conference has been held.

After the President had issued his call for the Conference, the Association in August called a meeting in Washington of all the national organizations interested in the success of the Conference, and out of this grew the National Council for Limitation of Armament, with headquarters at 532 Seventeenth Street, N. W., Washington. Miss Merriman, the Secretary of the Association, acted as Chairman of the Clearing House and afterwards as Temporary Chairman of the National Council.

The Association heartily supports the naval limitation proposed by Secretary Hughes. It would, however, go further,—scrap all cruiser submarines and work for the progressive reduction of all navies until they reach the status of police forces.

THE AMERICAN SOCIETY OF INTERNATIONAL LAW regularly issued its quarterly official organ, the *American Journal of International Law*, and held its annual meeting in Washington, April 27-30, 1921, at which the principal topic of discussion was the Reconstruction of International Law. The American Institute of International Law was unable to hold a meeting in 1921.

THE PAN-AMERICAN UNION (Washington, D. C.). The year 1921 was an active one. Although the chaotic conditions prevailing in Europe were reflected throughout Latin-America, resulting in a considerable decline in the import and export trade of those republics with the United States and other countries, interest in the nations to the south has not declined. On the contrary, those countries are attracting more and more attention from all parts of the world. Manufacturers and exporters in general are making a survey of the Latin republics as possible fields of future activity; the increase in the study of Spanish has stimulated interest in the nations which speak this language as well as in the great Portuguese-speaking republic; while the large number of clubs, societies, and other organisations studying Latin-America is further evidence of the attention which those countries command from the people of the United States and other lands.

The Pan-American Union, being the principal source of information on Latin-American countries, has been taxed to the utmost in answering the numerous inquiries addressed to it. Thousands of letters are received each month, not only from people of the United States and Latin-America, but from practically all parts of the world.

The Section of Education continued its campaign in behalf of the study of Spanish, Portuguese, Latin-American history, and development, and in otherwise bringing the Republics of the Americas into closer educational and cultural relationship. Due mainly to the efforts of this division of the Union most of the leading colleges and universities of the United States have granted scholarships to Latin-American students who desire to continue their studies in this country. The Section of Education also laid foundations for the exchange of teachers between the United States and Latin-American countries, collecting a file of detailed information regarding the qualifications of teachers, and carrying on an extensive correspondence with Latin-American officials, which it is hoped will bring results as the economic situation becomes more favorable. There was also a steady and increasing demand for all classes of publications issued by the Union.

In addition to a series of booklets, the Union sent out during the year hundreds of press releases and photographs to Latin-American newspapers on occurrences in the United States, while the press of this country was supplied with releases on important events transpiring in the Latin-American countries. Latest statistical data from official sources on the trade and commerce of the various republics were also compiled and sent to leading libraries, banks, export and import houses, and other interested parties throughout the country.

The Bulletin of the Pan-American Union during 1921 continued to publish material which it was believed would prove of interest to its readers. A slight change, however, was made in the contents of the Spanish and Portuguese editions. Instead of devoting every issue to general matter, it was decided to publish a series of special numbers on some subject of interest and importance to the American republics, these special issues alternating with the more general numbers. It is gratifying to note that these special numbers have received high commendation from officials in every section of the American continent.

The Library of the Union, showed a healthy growth in its several departments. It now contains approximately 50,000 volumes, 180,000 index cards, and a large collection of maps. Each year the Library is becoming better known as a source of original material on the republics of the Union, and a notable feature during 1921 was the special trips made by students and business men from other cities to consult the material here available.

In accordance with the resolution passed at the Sixth International Sanitary Conference, held in Montevideo in December, 1920, recommending the establishment of an International Sanitary Bureau in Washington as provided by a resolution of the Second Conference of American States, the International Sanitary Bureau began to function in and as a part of the Pan-American Union in May last. One of the first activities of the Bureau was the preparation of special Spanish and Portuguese editions of the Pan-American Bulletin on sanitation. The Bureau is now in close correspondence with officials of boards of health, sanitary officers and prominent officials of the different American republics with a view to coöperating with them in such a way as to aid in the improvement of sanitary conditions of their ports and territories and in controlling, in so far as possible, the spread of communicable diseases.

THE AMERICAN MID-EUROPEAN ASSOCIATION activities have been chiefly of an economic rather than social nature. In 1920 the president of the Association (R. J. Caldwell) went to Europe as economic commissioner for the United States, to investigate conditions in Middle Europe, and the Association has devoted its attention largely to making contracts here for Mid-European visitors to this country, so they would be enabled to form the proper connections for their purposes expeditiously. In this way, their financial commissions have met those of American financiers who are willing and inclined to render assistance. They were kept informed of the various activities in banking circles here in the way of new export and import promoting and other financial groups, while their industrial commissioners have been brought in contact with the proper people who best serve their purpose. Also, important Americans and others visiting Middle Europe have received facilities to meet the people of consequence of Middle Europe.

IOWA. POPULATION. According to the report of the census of 1920, there were 2,404,021 residents in the State, Jan. 1, 1920, as compared with 2,224,771 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	10,330,000	444,190,000	\$133,257,000
	1920	10,300,000	473,800,000	222,686,000
Oats.....	1921	5,960,000	154,960,000	35,641,000
	1920	5,894,000	229,866,000	82,752,000
Barley.....	1921	166,000	3,901,000	1,638,000
	1920	180,000	4,950,000	3,118,000
Wheat.....	1921	579,000	10,102,000	8,890,000
	1920	613,000	10,732,000	15,024,000
Clover seed....	1921	125,000	200,000	1,940,000
	1920	142,000	284,000	3,479,000
Rye.....	1921	32,000	515,000	376,000
	1920	32,000	544,000	636,000
Potatoes.....	1921	96,000	4,128,000	5,779,000
	1920	96,000	10,560,000	12,863,000
Sor. syrup.....	1921	8,000	672,000	712,000
	1920	10,000	1,000,000	1,287,000
Hay.....	1921	3,623,000	5,210,000	47,406,000
	1920	3,590,000	5,334,000	84,982,000

¹ Gallons.

² Tons.

DRAINAGE. The United States Bureau of the Census published the accompanying summary of drainage conditions in 1920.

Item	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	213,439	100.0
Farms reporting land having drainage.....	88,885	41.6
Farms reporting land needing drainage.....	56,083	26.3
All land in farms.....	33,474,896	100.0
Improved land in farms.....	28,606,951	85.5
Farm land reported as provided with drainage.....	7,334,404	21.9
Farm land reported as needing drainage.....	2,052,942	6.1
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	35,575,040	100.0
All land in operating drainage enterprises.....	5,224,478	14.7
Improved land.....	4,493,407	12.6
Timber and cut-over land.....	74,852	0.2
Other unimproved land.....	656,419	1.8
Capital invested in and required for completion of operating enterprises.....	\$54,169,878	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	\$49,627,304	91.6
Additional capital required to complete these enterprises.....	\$4,542,574	8.4

The principal crops grown upon the drained land in drainage enterprises are corn and hay. The total works completed by drainage enterprises to Dec. 31, 1919, comprised 3908.0 miles of open ditches, 10,384.9 miles of tile drains, and 45.2 miles of levees; the additional lengths under construction were 81.1 miles of open ditches and 768.6 miles of tile drains. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the enterprises, nor the works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. There were eight pumping districts among the operating drainage enterprises in the State, all equipped with centrifugal pumps.

MANUFACTURES.

increase in "Rent and taxes." After 1914 there was a marked shortening of the working-day in Iowa. In that year 17.4 per cent of the wage earners were included in the group "48 and under," as against 38 per cent in 1919. In 1914 the "sixty" and "over sixty" groups constituted 44 per cent of the total wage earners, as compared with 19.5 per cent in 1919.

TRANSPORTATION. The mileage of single track steam railway in the State at the end of 1921 was 10,198; and of electric interurban line, 521.

EDUCATION. The school population of the State,—that is to say between the ages of five and twenty-one, in 1921 was 690,061; pupils enrolled, 537,886; average daily attendance, 422,416; number of teachers, 26,622. The total expenditures for common schools in 1921 was \$54,980,766.

	Manufacturing industries		Increase or decrease, per cent ¹
	1919	1914	1914-19
Number of establishments.....	5,683	5,614	1.2
Persons engaged.....	105,439	82,631	27.6
Proprietors and firm members.....	5,393	5,421	-0.5
Salaries employees.....	19,495	14,097	38.3
Wage earners (average number).....	80,551	63,113	27.6
Primary horsepower.....	242,946	190,049	27.8
Capital.....	\$403,205,513	\$233,128,542	73.0
Salaries and wages.....	124,161,129	56,170,325	121.0
Salaries.....	34,043,960	16,310,815	108.7
Wages.....	90,117,169	39,859,510	126.1
Paid for contract work.....	1,470,139	993,326	48.0
Rent and taxes.....	15,100,221	3,555,794	324.7
Cost of materials.....	520,240,807	205,451,339	153.2
Value of products.....	745,472,697	310,749,974	139.9
Value added by manufacture.....	225,231,890	105,298,635	113.9

¹ A minus sign (—) denotes decrease.

In 1920 there were eighteen cities in the State having more than 10,000 inhabitants. The combined population of these cities in that year was 604,150 which formed 25.1 per cent of the total for Iowa. Of the total value of the State's manufactured products, 78.4 per cent was reported from these eighteen cities.

The large increases in salaries and wages, cost

FINANCE. The balance on hand, Jan. 1, 1921, was \$6,198,515; the receipts for the year were \$25,758,916; expenditures, \$28,550,198; balance, December 31, \$3,407,223.

CHARITIES AND CORRECTIONS. The population of each of the institutions under the State Board of Control at the end of the fiscal year June 30, 1920, is shown in the following table:

Institutions	Male	Female	Total
Soldiers' Home, Marshalltown.....	355	243	598
Soldiers' Orphans' Home, Davenport.....	245	148	393
Institution for Feeble-Minded Children, Glenwood.....	748	755	1,503
State Sanatorium, Oakdale.....	98	128	226
Training School for Boys, Eldora.....	412	...	412
Training School for Girls, Mitchellville.....	...	158	158
Mount Pleasant State Hospital (Insane), Mount Pleasant.....	627	511	1,138
Independence State Hospital (Insane), Independence.....	586	522	1,108
Clarinda State Hospital (Insane), Clarinda.....	659	510	1,169
Cherokee State Hospital (Insane), Cherokee.....	667	474	1,141
State Hospital and Colony for Epileptics, Woodward.....	126	110	236
State Penitentiary, Port Madison.....	476	...	476
Men's Reformatory, Anamosa.....	672	...	672
Women's Reformatory, Rockwell City.....	...	51	51
Totals.....	5,671	3,610	9,281

of materials, and the value of products, were largely due to the changes in industrial conditions brought about by the World War, and, therefore, cannot properly be used to measure the growth of manufactures during the census period 1914 to 1919. The increases shown, however, in number of wage earners and horsepower are indicative of a decided growth in the manufacturing activities of the State. The addition of the Federal income tax after 1914 will account for the exceptional

In addition to the above institutions plans were made for the establishment of a State home for dependent, neglected, delinquent, or destitute children and the site proposed was the small city of Toledo, Iowa. Progress was reported by the authorities in the education of the public in respect to the means of preventing tuberculosis. Other tuberculosis and children's clinics were established under the various county medical societies. As to the industries in the various State

institutions, the sales amounted to more than \$1,250,000 and the net profits and reserves to over \$450,000 during the year 1919. The institution farms during that year earned \$351,325.

LEGISLATION. The thirty-ninth General Assembly did not enact any measures of great public interest. This was, to a large extent, explained by the expectation on the part of the members that many of the important subjects were to be dealt with in connection with code revision and the calling of a constitutional convention. The legislature did not carry out the people's mandate for a constitutional convention and it did not make any provision for it. The code commission bills were not acted upon.

OFFICERS. Governor, N. E. Kendall; Lieutenant-Governor, John Hammill; Secretary of State, Walter C. Ramsay; Treasurer, W. J. Burbank; Auditor, Glenn C. Haynes; Attorney-General, Ben J. Gibson.

JUDICIARY: Supreme Court: Chief Justice, William D. Evans; Associate Justices: Truman S. Stevens, Byron W. Preston, Thomas Arthur, Silas M. Weaver, Lawrence DeGraff, and E. F. Faville.

IOWA, UNIVERSITY OF. A co-educational state institution at Iowa City, Iowa; founded in 1847. In the fall session of 1921 there were 4732 students enrolled of whom 2909 were in the College of Liberal Arts; 393 in Applied Science; 304 in Medicine; 278 in graduate courses; 258 in Dentistry; 204 in Law; the rest distributed in the Schools of Pharmacy, the Correspondence School and the school for the training of nurses. In the summer session there were 1750 students enrolled. The faculty numbered 498. The total income was 3,150,288. The library contained 172,000 volumes. In 1921 the University Armory, the Psychopathic Hospital and the Nurses' Home were completed and a chemistry building was under construction at a cost of \$1,000,000. The organization of an Iowa Memorial Building in memory of service men was going on. President, Walter A. Jessup, Ph.D.

IRAQ. The name of a new kingdom set up under British influence in Mesopotamia under Emir Feisal. See MESOPOTAMIA.

IRELAND. The smaller of the two main British Isles. Capital, Dublin. Area, 32,586 square miles; population (1911), 4,390,219, of whom 2,192,048 were males. The British census of 1921 did not include Ireland on account of the disturbed conditions (see GREAT BRITAIN).

PRODUCTION. The number and size of the holdings in 1918 were according to the *Statesman's Year Book* of 1921 as follows:

approximately 15,000,000 acres capable of utilization for agriculture and husbandry. The table on page 375 shows the acreage of important crops and the production in 1919 and 1920.

In 1920 the herds of Ireland comprised: Cattle, 5,019,837 head; sheep, 3,588,892 head; pigs, 980,078 head; goats, 247,187 head; horses, 631,654 head; mules and asses, 253,444 head.

Among the chief industries are shipbuilding, the woolen industry and the manufacture of agricultural machinery, bags and sacking, biscuits, bottles, carpets, cordage, fertilizers, flour, linens, leather, haberdashery, tobacco products, beer, liquors, etc. The centre of the ship building industry is Belfast where the average annual output before the war was about 150,000 tons. In 1919 it was 222,955. Latterly Dublin has become a more important centre of the industry. The linen manufacturers include, tweeds, underwear, hosiery, etc., and there are about 85 woolen mills in the country.

COMMERCE. The following information was supplied by the United States Bureau of Foreign and Domestic Commerce: "Direct" imports into and exports from Ireland are those which are imported into or exported from Ireland directly without being transhipped from some port elsewhere in Great Britain. Before the war about 23 per cent of Ireland's imports and 2 per cent of its exports were "direct." The total value of all imports into Ireland, both direct and otherwise, in 1919 was £158,715,944, and the value of the exports was £176,031,481. "Direct" imports amounted to £26,341,725 in 1919 and £42,590,409 in 1920. The following table shows the countries of origin of these imports in 1919 and 1920:

Countries of origin	1919 £	1920 £
Belgium.....	274,000	4,184,000
Holland.....	1,558,000	2,021,000
Sweden.....	894,000	1,738,000
Russia.....	25,000	708,000
Germany.....	24,000	596,000
Portugal.....	453,000	383,000
Spain.....	238,000	315,000
Roumania.....		284,000
Norway.....	111,000	251,000
France.....	53,000	243,000
Italy.....		215,000
Other European.....	172,000	44,000
Total European.....	3,802,000	10,982,000
United States.....	9,240,000	13,566,000
Argentina.....	3,636,000	8,681,000
Canada.....	6,911,000	5,179,000
Other American.....		148,000
Total American.....	19,787,000	27,574,000
Australasia.....	1,416,000	2,852,000
Asia.....	632,000	849,000
Africa.....	704,000	333,000
Grand Total.....	26,341,000	42,590,000

Size of holdings		Leinster	Munster	Ulster	Connaught	Ireland
Not exceeding 1 acre.....		38,809	33,403	33,895	8,717	114,824
Above 1 and not exceeding 5 acres.....		12,752	9,327	15,964	8,302	46,345
" 5 " " " 10 ".....		10,317	7,983	27,480	18,747	64,527
" 10 " " " 15 ".....		8,162	6,870	24,819	19,411	59,262
" 15 " " " 30 ".....		17,906	20,072	48,496	36,498	122,972
" 30 " " " 50 ".....		13,224	20,486	24,083	14,604	72,987
" 50 " " " 100 ".....		13,132	22,374	15,540	6,629	57,675
" 100 " " " 200 ".....		6,929	9,885	4,123	2,336	23,275
" 200 " " " 500 ".....		2,947	2,897	1,145	1,161	8,150
Above 500 acres.....		657	472	322	517	1,968
Total No. of Holdings.....		124,835	133,769	196,467	116,914	571,985

The total area of Ireland is approximately 20,000,000 acres, of which nearly 5,000,000 acres are bog, marsh, barren, mountainous, etc., leaving

For further statistical information, see GREAT BRITAIN.

Crops	Area planted		Quantity produced	
	1919 Acres	1920 Acres	1919 Bushels	1920 Bushels
Barley.....	186,625	206,888	8,125,000	7,527,000
Cabbage.....	26,352	28,409	1 292,604	1 317,819
Flax.....	95,610	127,227	(2)	(2)
Hay, including meadows and special-sown fields.....	2,520,096	2,518,320	(2)	(2)
Mangels.....	74,839	77,447	1 1,431,610	1 1,245,507
Oats.....	1,442,458	1,332,050	85,540,000	65,388,000
Potatoes.....	588,802	584,316	102,539,000	74,140,000
Rye.....	5,222	5,580	142,000	136,000
Turnips.....	273,460	276,507	1 4,486,657	1 4,107,462
Wheat.....	69,663	50,252	2,452,000	1,403,000

1 Tons.

2 Statistics lacking.

HISTORY

SUMMARY. The following were the chief events in the struggle for independence, and the difficulties which grew out of it during the year: At the beginning of the year seventeen Sinn Fein Members of Parliament were in jail, and there was a spirit of great bitterness prevailing on account of the acts of violence on both sides during the preceding month. The Pope on February 12 condemned both the warring parties in Ireland while expressing sympathy with the people. On February 21 six Sinn Feiners were executed at Cork jail. Meanwhile a truce between the British government and the representatives of the new republic was under discussion, and on March 3 Lloyd George declared that all guilty Sinn Feiners would be excluded from the peace discussion. On March 7 Michael O'Callaghan, former Mayor of Limerick, was shot and killed by masked men. A week later six more Irish prisoners were executed at Mountjoy prison. On March 25 the Irish parliament decreed a boycott on certain British imports to go into effect, March 31. A report was published by the American Committee of One Hundred on March 31, laying the blame for the reign of terror in Ireland on the British authorities. On April 28 four men were executed at Cork barracks on charges of attacking the forces of the Crown. On the week ending May 16, thirty-three persons were reported killed in attacks on the Crown forces. On May 21 the Pope made another appeal to both sides to refrain from violence. This was followed May 25 by the burning of the Dublin customs house, causing the death of 18 people, the wounding of 110, and the loss of about \$10,000,000 worth of property. Meanwhile conversations on the subject of a possible agreement were begun, May 6, between the Irish leader, De Valera, and the leader of the Ulster Unionists, Sir James Craig. Three more Sinn Feiners were executed on June 7. As to the Sinn Fein atrocities the Crown representative, Sir Hamar Greenwood, declared on June 16 that 568 murders had been committed by them. On May 26 a large quantity of ammunition which was said to have come from American sympathizers was seized at Dublin, and on June 15 a cargo of machine guns, said to be destined for Sinn Feiners was seized in New York. The Ulster parliament under the Government of Ireland Act was opened by the King, June 22, who made a plea for the return of peace. At the same time 15,000 additional British troops were landed in Ireland. On June 24 De Valera was arrested near Dublin but soon released. On June 25 it was announced that martial law would be established in Ireland by July 12 unless the

Irish agreed to the truce. On June 30 four prominent Sinn Feiners, including the leader, Arthur Griffith, were released from Mountjoy prison. On July 9 the British Prime Minister invited De Valera and Sir James Craig to a meeting in London, and a truce was agreed upon pending the meeting. The first London conference took place, July 14-21, and De Valera submitted the British proposals to the Irish parliament. On August 10 he rejected the proposals with the exception of certain features after ascertaining the will of the representatives of the revolutionary government. On August 13 Lloyd George declared that loyalty to the British Crown could not be compromised. On August 16 the Irish parliament, known as the Dail Eireann, was formally opened and its leaders professed the principles set forth in the American Declaration of Independence. On September 29 Lloyd George invited delegates of Sinn Fein to a meeting on October 11 in order to consider measures for a reconciliation, and on the following day this invitation was accepted by De Valera. The conference opened, October 11. Efforts of a small party in parliament to condemn the government were unsuccessful, and a resolution to this effect was defeated, October 31, by 439 to 43. Throughout November there was much agitation over the question as to the status of the Catholic population in the North of Ireland. Rioting occurred at Belfast again, November 20-26, when 27 persons were reported killed and 92 wounded. On December 1 new proposals were under discussion, involving the appointment of a commission to settle the boundary between the North and South; the granting of the dominion status to Ireland; and noninterference with Ulster. On December 4, the Sinn Fein delegates objected to the territorial integrity of Ulster. On December 6 the Irish delegates signed a treaty in the name of the Irish Free State, leaving to Ulster the right to determine within a month what her status would be. On December 7 the King summoned Parliament to ratify the treaty. On December 8 De Valera and two members of the Sinn Fein ministry objected to the treaty and asked that the subject be referred to popular vote. Both the British and Irish parliaments began to discuss the treaty on December 14. The treaty was ratified in the British House of Commons by 401 to 58, and in the House of Lords by 166 to 47 (December 16). In the Irish parliament there were sharp attacks on the treaty by De Valera and his supporters and it was vigorously defended by Mr. Arthur Griffith and others. The Irish parliament adjourned until January 3. Thus the question was unsettled at the close of the year, but the signs pointed to a majority in

the Irish parliament in favor of the treaty. Important features of the above record are developed in detail in the following paragraphs together with a review of the discussion to which they gave rise.

ELECTIONS. The elections for parliament were held, May 13. With the exceptions of four imperialist candidates returned for Dublin University, all the other members returned—for southern Ireland, one hundred twenty-four in number, were Sinn Feiners who had refused to take the oath of allegiance to the crown and would thus prevent the new parliament for the South of Ireland under the Government of Ireland Act from coming into existence. Among Sinn Feiners elected were: Mr. de Valera, John MacNeill, Michael Collins, Arthur Griffith. The Nationalist leader, Joseph Devlin, was also elected. Members were elected to the northern parliament on May 24.

ULSTER PARLIAMENT. The new Government of Ireland Act, described in the preceding YEAR BOOK, was passed by the House of Commons in December, 1920. It did not go into effect for the South of Ireland where it was denounced by the Sinn Feiners. It provided, as noted in the preceding YEAR BOOK, for a northern and southern parliament and for a central parliament consisting of representatives from both the North and the South. The northern or Ulster parliament came into existence in 1921, Ulster having accepted the act and held elections as above noted, May 24. Its organization took place at Belfast, June 7, under the presidency of the new viceroy, Viscount Fitzalan, formerly Lord Edmund Talbot. The ministry was as follows: Prime Minister, Sir James Craig; Home Secretary, Sir Dawson Bates; Finance, H. M. Pollock; Education, Marquis of Londonderry; Labor, J. M. Andrews; Agriculture, E. A. Archdale. R. W. A. O'Neill was elected speaker. The session of the northern parliament opened, as noted above June 22. The King in his address to the new body appealed to all Irishmen to forgive and forget and strive for conciliation and peace.

NEGOTIATIONS. Steps were taken from the beginning of the year toward an agreement between the two governments. On January 6 Michael O'Flanagan, vice-president of the Sinn Fein, held a conference with Lloyd George, and attempts to arrange a peace parley continued at intervals throughout the early part of the year. On March 7 the Irish leader, Eamonn de Valera, published a declaration which had been agreed upon at the general meeting of the Irish republican parliament and addressed to the representatives of foreign nations demanding self-determination for Ireland. After the failure of the London conference of July 14-21, noted above, negotiations began again early in August between the British government and the representatives of the so-called "Irish Republic" for the working out of some kind of settlement. The correspondence consisting of long letters from the respective parties was published in the press. It began with a letter from Jan C. Smuts, Prime Minister of South Africa, August 4, in which he said that while it was to the interest of Ulster to be included under the United Ireland Constitution, yet, in view of her opposition he advised the Irish representatives to leave her out for the present. They ought to concentrate their efforts upon securing the independent constitution

for the remaining twenty-six counties, and, when this was accomplished, he believed that Ulster would eventually be drawn into the new state. On August 14 notes were made public showing the attitude of Mr. de Valera and Prime Minister Lloyd George. These showed that the British proposals dated July 28 aimed at putting an end to the present conflicts and for this purpose advocated the immediate assumption by Ireland of the status of a dominion. Along with this degree of self-government Ireland should have charge of its own taxation and finance and should possess its own courts, army for home defense, police, postal service, and organizations concerned with education, agriculture, mine, and forestry labor, etc. The British government made only these conditions: The seas around Ireland should be under the control of the Royal Navy and Irish territorial forces should be raised by Great Britain in the same proportion as the military establishments in other parts of the British Isles; no protective duties were to be adopted and Ireland was to be responsible for her share of the debt of the United Kingdom. The reply of Mr. de Valera, August 10, said that he had already declared his opinion at the London conference that the Irish parliament would not accept these proposals and he was still of this opinion. These proposals included conditions which were inconsistent with the vital principle of Irish independence, namely, absolute separation. Dominion status was an illusion, for the degree of independence enjoyed by the dominions was not the result of their legal status as dominions, but of their distance from Great Britain. As to the independence of Ulster he said that it concerned the Irish alone, but that if the problem could not be solved on that basis, he was willing to submit it to arbitration. Lloyd George replied, August 13, that no British government could compromise on the right of Ireland to secede and no such right could ever be acknowledged by it. As to referring differences to foreign arbitration, that must be squarely rejected. He said in conclusion that the government had made these proposals in a sincere desire for peace but could not go beyond them.

After the proposals in respect to Ulster were made known Sir James Craig, the Ulster Prime Minister, set forth the Ulster position in a letter to Lloyd George. After referring to the sacrifices made by Ulster in agreeing to a parliament for Northern Ireland and saying that the Irishmen of the South had repudiated the Government of Ireland Act and were asking for wider powers, he said that Ulster must decline to interfere in the arrangement between Great Britain and South Ireland. Ulster did not stand in the way of peace, but she could not permit any interference with her parliament and her rights. There could not be any meeting between himself and Mr. de Valera until the latter recognized the direct dependence of Northern Ireland on the King and the Parliament of the United Kingdom.

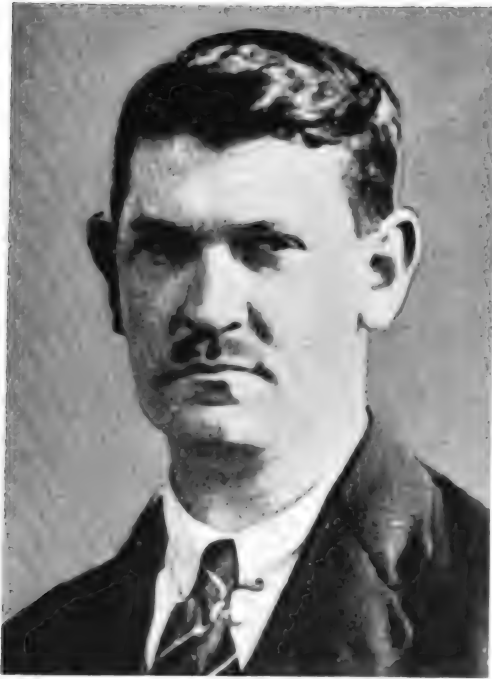
The Irish republican parliament known as the Dail Eireann was formally opened at Dublin, August 16, many well-known leaders being present. Professor John MacNeill was elected Speaker. Mr. de Valera made an address in which he likened the Irish movement to the American Revolution, renewed Ireland's claim to separation and declared that the cabinet of this Irish parliament was the only government recognized by the Irish people.

The parliament went into secret session August 23 to frame a reply to the proposals of the British government. After these deliberations a letter signed by Mr. de Valera was sent to Lloyd George, August 25. This rejected the British arguments that were based on geographical propinquity, and the British claim that Ireland must subordinate herself to British military necessities, saying that if nations that have been forcibly annexed to an empire lose thereby their title to independence, there can be for them no re-birth of freedom. Ireland had not sought war, but, if war were made upon her, she would defend herself. If the British government insisted upon imposing its will by force, the responsibility for the continuance of the conflict would rest upon it. Peace could be secured on the basis of the principle that government depended on the consent of the governed. Lloyd George replied, August 26, with a denial that the British proposal involved the surrender of Ireland's national tradition. He said on the contrary under these proposals Ireland would have complete control over her own national existence and, in fact, be free in every respect of national activity of development, but Great Britain would refuse any demand for absolute independence. He likened the situation to that of the United States during the Civil War. In conclusion he said he was ready to continue negotiations in the hope of finding a basis of agreement. The Irish parliament replied to this, September 2, that the conditions which Lloyd George tried to impose would divide Ireland into two mutually destructive states. This letter brought the Ulster question into the foreground. At this serious juncture Lloyd George who was on a vacation called a cabinet meeting at Inverness, Scotland, September 2. The reply of the government was ready the same afternoon. It declared that government by consent of the governed was the basis of the British constitution, but a conference could not be based on such an interpretation of this principle as would commit the British government in advance to any demand that the Irish representatives might make. The Irish representatives would attend such a conference with a perfect right to discuss the British proposals on their merits and to raise such questions in respect to guarantees as they saw fit. To decline to discuss such a settlement was merely to repudiate all allegiance to the Crown. If that was what the Irish note meant to convey, further discussions would be of no use. Such was the course of the negotiations down to September 12. In the meanwhile the Ulster parliament maintained its firm attitude, the Speaker of the Ulster parliament saying in a public address that any diminution of the rights and privileges of the new Ulster parliament would lead to civil war. From time to time during these negotiations rioting and other disturbances occurred. For example, there were serious riots, August 21, August 29, and August 31, resulting in the killing of fifteen persons and the wounding of thirty-four. The centre of these disturbances was Belfast.

SITUATION IN SEPTEMBER. Lloyd George in a message to the president of the Trades Union Congress at Cardiff indicated that he would not give way on the principle asserted in his reply of September 2 to the Irish representatives. In the same message he sought to conciliate American opinion by appealing to the authority of Lincoln to the effect that bloodshed is preferable to the

breaking up of a political organism whose unity and strength are essential to the liberty of the world. Critics were not slow to point out the great difference between the two situations and to attribute Lloyd George's interpretation of Lincoln's words as a misreading of history, for obviously there was no parallel between relations of the North to the South on the one hand and of the Irish to the English on the other. As to the opinion on the Continent, it was not won over by his phrases. Foreign critics said that on this principle Lloyd George might soon be making equally forcible arguments on behalf of British policy in Egypt, Mesopotamia, and India. During the first part of September the situation was as follows: The British Government seemed determined to refuse any discussion of an independent and sovereign Irish republic and also to refuse to force Ulster to submit to the government of the south of Ireland. On the other hand, the Sinn Feiners were insisting not only that Ireland must be an independent republic but a united and indivisible state to which Ulster, consisting only of a minority, must submit. In the third place, Ulster in its turn was unwilling to recognise any other authority than the British crown and had established a separate government at Belfast. Even if Ireland seceded from the British Empire Ulster was determined to continue as a part of the United Kingdom. Sir James Craig, Prime Minister of Ulster, declared that it was for Mr. de Valera and the English people to come to an agreement in respect to the territory outside his own jurisdiction. When that agreement had been reached he could promise on the part of the north of Ireland a cordial coöperation on an equal footing with south Ireland. Thus there were three distinct points of view and for the time they seemed irreconcilable. The Ulster problem was difficult and the hands of Lloyd George were tied in large measure by commitments to the Ulster Unionists. In short it was a question how London could satisfy Dublin and Belfast at the same time. The Sinn Feiners fully understood this difficulty but in spite of it they remained firm and Mr. de Valera steadily refused to abandon any of his claims. Lloyd George's letter to Mr. de Valera objecting to the reference to an Irish republic proposed a new conference which should take place September 20. Pressure was brought to bear on the Sinn Feiners by many of their friends and they were urged to accept the prime minister's invitation.

THE ULSTER QUESTION. The Sinn Feiners aimed not only at an independent but a united Ireland, and this meant that Ulster must be included in it. The proceedings at the conference were not published, but it seemed evident that the main question turned on the demand of Sinn Feiners either for the inclusion of Ulster or a greater degree of independence for the rest of Ireland if Ulster were left out. It was inferred in the press that this was the basis of the bargaining between the two parties to the dispute. The main points in the Ulster situation were as follows: Geographically Ulster comprises nine counties, but politically it consists of only six. These six counties under the jurisdiction of the new northern parliament had in 1911 a total population of 1,250,531, of whom the Roman Catholics made up 35.19 per cent or 430,161. In the other three counties the Roman Catholic percentage ranged



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MICHAEL COLLINS
Noted Sinn Fein Leader



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SIR JAMES CRAIG
Premier of Ulster



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ARTHUR GRIFFITH
One of the Special Envoys in the Irish Peace Treaty



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EAMON DE VALERA
President of the "Irish Republic"

FOUR MEN PROMINENT IN IRELAND IN 1921

20

from 74 to 81. Now in certain parts of the six counties under the new parliament the Roman Catholic percentage is much greater. In Fermanagh the Roman Catholics numbered 34,740 out of a total of 61,836 or 56.18 per cent, and in Tyrone there were 79,015 out of a total of 142,665 or 55.39 per cent. This was a considerable area and despite its Roman Catholic majority it was handed over to the Ulster government. On the principle of self-determination the Sinn Feiners might claim that this region should be taken from Ulster and turned over to southern Ireland. In the elections to the county councils in January, 1920, Fermanagh gave of its 27 seats, 9 to Sinn Fein, 7 to Nationalists and 11 to Unionists, and Tyrone gave out of a total of 28, 14 to Sinn Fein, 3 to Nationalists and 11 to Unionists. In the rural district councils of Fermanagh and Tyrone the Sinn Feiners and Nationalists also had a majority in almost all of the districts, and the same was true of the Boards of Guardians under the Poor Law. The above is sufficient to indicate the difficulty and complexity of the situation.

In July the Prime Minister of Ulster, Sir James Craig, was invited to London for the purpose of coming to an agreement in respect to Ulster, thus implying that the acceptance by Ulster of the conditions of settlement in advance was necessary to any solution of the problem. In November, however, the situation had so far changed that the basis of settlement appeared to be an agreement between the British government and the Sinn Fein representatives to which Ulster was expected to conform. This was characterized by the Ulster partisans as a betrayal of their cause and it was said in the press that the people of Ulster would never consent to an arrangement that would turn Ireland into a dominion and Ulster into a self-governing province in that dominion. This point of view rested on the fact that Lloyd George himself had established the Ulster parliament and guaranteed its independence and its direct relation to England. He therefore was blamed for undoing his own work and breaking his engagements. The division of Ireland into two zones, however, comprising on the one hand the six counties of the north and on the other the twenty-six counties of the south, was put through by the British government in the belief that it could not actually be worked out unless both the south and the north of Ireland supported it. Moreover, it was held by the opponents of Ulster that this northern zone did not really represent the self-determination of the inhabitants for it included several districts in which Sinn Feiners were in the majority and had been determined merely by a group of politicians. It was held by these Irish sympathizers that Ulster had no just ground for refusing to reopen the matter for discussion. Much was said in favor of a solution by turning over the two counties of Tyrone and Fermanagh, the centre of the Sinn Fein majorities, to the southern section and then arranging a form of separation for the rest of Ulster. The objection to this was that in Belfast there would remain a disaffected minority of Catholics and anti-Unionists and that the causes of friction in the future would be increased. On the one hand there was the extreme view of the Sinn Feiners that the unionism of Ulster was of no political significance and on the other the extreme view of many leading English politicians since the Ulster rebellion of

1913 that Ulster must be protected as the centre of loyalty to the Empire. The Unionists of Ulster maintained that they stood for unionism with the Empire. In answer to this their opponents said that the proposed settlement involved Ireland's inclusion in the Empire and that Ulster was therefore in no danger of exclusion. If the republicans after their savage repression in 1916 were ready to accept a solution that would leave them within the Empire, it seemed unreasonable that Ulster should reject this solution. In November, it appeared that Lloyd George had so advanced in the direction of a possible understanding with the Sinn Feiners that the real obstacle that stood in his way was the irreconcilable attitude of Ulster. The general feeling in Liberal circles in other countries, especially in the United States, was that if Ulster persisted in this course, its narrow and selfish attitude ought not to stand in the way of a settlement and that in general the British government had shown altogether too much consideration for the wishes of this small minority.

AGREEMENT IN A CONFERENCE. The Irish leader wrote, September 15, that while his people were ready to enter the conference, he felt it his duty to repeat that his nation had formally declared its independence and recognized itself as a sovereign state. To this Lloyd George replied that an acceptance on this basis would imply an official recognition by the British government of the separation of Ireland from the Empire and its existence as an independent republic. Therefore a conference on this condition must be refused. Nevertheless he left the door open for further negotiations. De Valera replied next that those whom he represented desired above all to set the conference on such a basis as would make a settlement possible, and to this Lloyd George replied, September 18 that a conference was impossible unless the words employed by De Valera in respect to Irish nationality and independence in his letter of the 12th were withdrawn, but that he was ready to meet the delegates as the representatives of the great majority in southern Ireland to discuss the association of Ireland with the British commonwealth. This brought another note from the Irish leader, September 19, in which he protested against the attitude of Lloyd George, but suggested that a properly arranged treaty would end the dispute between the two nations. Such a treaty could not be negotiated if the British Prime Minister imposed conditions which the Irish must regard as involving the surrender of their whole position. He then asked Lloyd George whether his letter of the 7th was intended to demand such a surrender. After a conference with his ministers, Lloyd George sent a note, September 29, including the following new offer: "We therefore send you herewith a fresh invitation to a conference in London on October 11. Here we can meet your delegates as the spokesmen of the people whom you represent with a view to ascertaining how the association of Ireland with the community of nations, known as the British Empire, may best be reconciled with Irish national aspirations." This was followed by a brief acceptance from Mr. de Valera, September 30. The British representatives as announced, October 7, in addition to the Prime Minister were as follows: Lord Birkenhead, Lord Chancellor; Sir Hamar Greenwood, Chief Secretary for Ireland; Austen Chamberlain, Government Leader in the House; Sir Laming Worthing-

ton Evans, Secretary of War; Winston Spencer Churchill, Colonial Secretary; and as an adviser on constitutional questions, Attorney General Hewart. The Irish leaders were Michael Collins; Arthur Griffith, Minister of Foreign Affairs; R. C. Barton, Minister of Economics; Gavan Duffy, representative of the Sinn Féin interest at Rome; and Commandant E. J. Duggan.

THE WHITEHALL CONFERENCE. The meeting of the Irish and British representatives took place at Whitehall, October 11. A short speech by Lloyd George opened the proceedings and general discussion then began at once. Committees were appointed and conferences between them began. The conference finally agreed on the treaty reproduced below, whose ratification by the Irish parliament was pending at the end of the year. The measure of liberty granted to Ireland did not satisfy Mr. de Valera and a minority in the Irish republican parliament. Mr. de Valera along with one of the ministers in the republican government protested bitterly saying that the terms of the London offer were an absolute contradiction to the wishes of the majority of the Irish nation and refused to recommend their ratification by the Irish parliament. In this he was supported by the extremists in Ireland and elsewhere. In the United States the representative of the Protestant Friends of Ireland, declared that the acceptance of these terms would place the Irish people for the first time in eight hundred years in the attitude of submission to a status of inferiority and even servitude and that it left nothing of the magnificent declaration of independence which had been sealed by the blood of the Irish people. A representative Irish paper in the United States declared that Ireland ought not to accept this defeat and representatives of the Irish in France also repudiated the arrangement saying that it made Ireland into a vassal of England. Violent language was used by the minority opposed to acceptance and it was said that for the first time the Irish would have to take as their national hymn, "God save the King." In December, however, it appeared from all accounts that a considerable majority of the Irish republican party was in favor of acceptance.

THE IRISH TREATY. Article I.—Ireland shall have the same constitutional status in the community of nations known as the British Empire as the Dominion of Canada, the Commonwealth of Australia, the Dominion of New Zealand and the Union of South Africa, with a Parliament having powers to make laws for peace and order and good government in Ireland, and an executive responsible to that Parliament, and shall be styled and known as the Irish Free State.

Article II.—Subject to provisions hereinafter set out, the position of the Irish Free State in relation to the Imperial Parliament, the Government and otherwise shall be that of the Dominion of Canada, and the law, practice and constitutional usage governing the relationship of the Crown or representative of the Crown and the Imperial Parliament to the Dominion of Canada shall govern their relationship to the Irish Free State.

Article III.—A representative of the Crown in Ireland shall be appointed in like manner as the Governor General of Canada and in accordance with the practice observed in making such appointments.

Article IV.—The oath to be taken by the members of the Parliament of the Irish Free State shall be in the following form:

"I do solemnly swear true faith and allegiance to the Constitution of the Irish Free State as by law established, and that I will be faithful to his Majesty King George V., and his heirs and successors by law, in virtue of the common citizenship of Ireland with Great Britain and her adherence to and membership of the group of nations forming the British Commonwealth of Nations."

Article V.—The Irish Free State shall assume liability for service of the public debt of the United Kingdom as existing at the date thereof and toward the payment of war pensions as existing on that date in such proportion as may be fair and

equitable, having regard for any just claims on the part of Ireland by way of set-off or counter-claim, the amount of such sums being determined, in default of agreement, by the arbitration of one or more independent persons being citizens of the British Empire.

Article VI.—Until an arrangement has been made between the British and Irish Governments whereby the Irish Free State undertakes her own coastal defense, defense by sea of Great Britain and Ireland shall be undertaken by his Majesty's imperial forces, but this shall not prevent the construction or maintenance by the Government of the Irish Free State of such vessels as are necessary for the protection of the revenue or the fisheries. The foregoing provisions of this article shall be reviewed at a conference of representatives of the British and Irish Governments to be held at the expiration of five years from the date hereof with a view to the undertaking by Ireland of a share in her own coastal defense.

Article VII.—The Government of the Irish Free State shall afford to his Majesty's imperial force (a) in time of peace such harbor and other facilities as are indicated in the annex hereto, or such other facilities as may from time to time be agreed between the British Government and the Government of the Irish Free State, and (b) in time of war or of strained relations with a foreign power such harbor and other facilities as the British Government may require for the purposes of such defense, as aforesaid.

Article VIII.—With a view to securing observance of the principle of international limitation of armaments, if the Government of the Irish Free State establishes and maintains a military defense force, the establishment thereof shall not exceed in size such proportion of the military establishments maintained in Great Britain as that which the population of Ireland bears to the population of Great Britain.

Article IX.—The ports of Great Britain and the Irish Free State shall be freely open to the ships of the other country on the payment of the customary port and other dues.

Article X.—The Government of the Irish Free State agrees to pay fair compensation, on terms not less favorable than those accorded by the Act of 1920, to Judges, officials, members of the police forces and other public servants who are discharged by it or who retire in consequence of the change of government effected in pursuance of the hereof paragraph.

Provided that this agreement shall not apply to members of the auxiliary police force or persons recruited in Great Britain for the Royal Irish Constabulary during the two years next preceding the date hereof. The British Government will assume responsibility for such compensation or pensions as may be payable to any of these excepted persons.

Article XI.—Until the expiration of one month from the passing of the Act of Parliament for the ratification of this instrument, the powers of the Parliament and Government of the Irish Free State shall not be exercisable as respects Northern Ireland, and the provisions of the Government of Ireland Act of 1920 shall, so far as they relate to Northern Ireland, remain of full force and effect, and no election shall be held for the return of members to serve in the Parliament of the Irish Free State for the constituencies of Northern Ireland unless a resolution is passed by both houses of Parliament of Northern Ireland in favor of holding such elections before the end of said month.

Article XII.—If before the expiration of said month an address is presented to his Majesty by both houses of Parliament of Northern Ireland to that effect, the powers of the Parliament and Government of the Irish Free State shall no longer extend to Northern Ireland, and the provisions of the Government of Ireland Act of 1920 (including those relating to the Council of Ireland) shall, so far as they relate to Northern Ireland, continue to be of full force and effect, and this instrument shall have effect, subject to the necessary modifications;

Provided, that if such an address is so presented, a commission consisting of three persons, one to be appointed by the Government of the Irish Free State, one to be appointed by the Government of Northern Ireland, and one, who shall be Chairman, to be appointed by the British Government, shall determine in accordance with the wishes of the inhabitants, so far as may be compatible with economic and geographic conditions, the boundaries between Northern Ireland and the rest of Ireland, and for the purposes of the Government of Ireland Act of 1920, and of this instrument the boundary of Northern Ireland shall be such as may be determined by such commission.

Article XIII.—For the purpose of the last foregoing article the powers of the Parliament of Southern Ireland under the Government of Ireland Act of 1920, to elect members of the Council of Ireland, shall, after the Parliament of the Irish Free State is constituted, be exercised by that Parliament.

Article XIV.—After the expiration of said month, if no such address as mentioned in Article XII hereof is presented, the Parliament of the Government of Northern Ireland shall continue to exercise as respects Northern Ireland the powers conferred upon them by the Government of Ireland Act of 1920, but the Parliament of the Government of the Irish Free State shall in Northern Ireland have in relation to matters, in respect of which the Parliament of Northern

Ireland has not the power to make laws under that act (including matters which, under said act, are within the jurisdiction of the Council of Ireland), the same powers as in the rest of Ireland, subject to such other provisions as may be agreed to in the manner hereinafter appearing.

Article XV.—At any time after the date hereof the Government of Northern Ireland and the Provisional Government of Southern Ireland, hereinafter constituted, may meet for the purpose of discussing provisions, subject to which the last of the foregoing article is to operate in the event of no such address as is therein mentioned being presented, and those provisions may include: (a) safeguards with regard to the collection of revenue in Northern Ireland; (c) safeguards with regard to import and export duties affecting the trade and industry of Northern Ireland; (d) safeguards for the minorities in Northern Ireland; (e) settlement of financial relations between Northern Ireland and the Irish Free State; (f) establishment and powers of a local militia in Northern Ireland and the relation of the defense forces of the Irish Free State and of Northern Ireland, respectively, and if at any such meeting provisions are agreed to the same shall have effect as if they were included among the provisions subject to which the powers of Parliament and of the Government of the Irish Free State are to be exercisable in Northern Ireland under Article XIV hereof.

Article XVI.—Neither the Parliament of the Irish Free State nor the Parliament of Northern Ireland shall make any law so as either directly or indirectly to endow any religion, or prohibit or restrict the free exercise thereof, or give any preference or impose any disability on the account of religious belief or religious status, or affect prejudicially the right of any child to attend school receiving public money without attending the religious instruction of the school, or make any discrimination as respects State aid between schools under the management of the different religious denominations, or divert from any religious denomination or any educational institution any of its property except for public utility purposes and on the payment of compensation.

Article XVII.—By way of provisional arrangement for the administration of Southern Ireland during the interval which must elapse between the date hereof and the constitution of a Parliament and a Government of the Irish Free State in accordance therewith, steps shall be taken forthwith for summoning a meeting of the members of Parliament elected for the constituencies in Southern Ireland since the passing of the Government of Ireland act in 1920 and for constituting a provisional Government. And the British Government shall take steps necessary to transfer to such Provisional Government the powers and machinery requisite for the discharge of its duties, provided that every member of such Provisional Government shall have signified in writing his or her acceptance of this instrument. But this arrangement shall not continue in force beyond the expiration of twelve months from the date hereof.

Article XVIII.—This instrument shall be submitted forthwith by his Majesty's Government for the approval of Parliament and by the Irish signatories to a meeting summoned for the purpose of members elected to sit in the House of Commons of Southern Ireland, and, if approved, it shall be ratified by the necessary legislation.

Signed on behalf of the British delegation:

LLOYD GEORGE.
AUSTEN CHAMBERLAIN.
BIRKENHEAD.
WINSTON CHURCHILL.
WORTHINGTON-EVANS.
HAMAR GREENWOOD.
GORDON HEWART.

On behalf of the Irish delegation:

ART OF GRIOBHATH (ARTHUR GRIFFITH).
MICHAEL O. O. SILEAIN (MICHAEL COLLINS).
RICHARD BARTUN (ROBERT C. BARTON).
E. S. DUGAN (EAMON J. DUGGAN).
SEORSA GHABGAIN UI DHUBHATHAIGH
(GEORGE GAVAN DUFFY).

Dated the 6th of December, 1921.

ANNEX.

An annex is attached to the treaty. Clause 1 specifies that Admiralty property and rights at the dockyard port of Berehaven are to be retained as at present date and the harbor defenses and facilities for coastal defense by air at Queenstown, Belfast, Lough and Loughswilly to remain under British care, provision also being made for oil, fuel and storage.

Clause 2 provides that a convention shall be made between the two Governments, to give effect to the following conditions: That submarine cables shall not be landed or wireless stations for communication with places outside of Ireland established, except by agreement with the British Government, that existing cable rights and wireless concessions shall not be withdrawn except by agreement with the British Government, and that the British Government shall be

entitled to land additional submarine cables or establish additional wireless stations for communication with places outside of Ireland, that lighthouses, buoys, beacons, &c., shall be maintained by the Irish Government and not be removed or added to except by agreement with the British Government, that war signal stations shall be closed down and left in charge of care and maintenance parties, the Government of the Irish Free State being offered the option of taking them over and working them for commercial purposes, subject to Admiralty inspection, and guaranteeing the upkeep of existing telegraphic communication therewith.

Clause 3 provides that a convention shall be made between the two Governments for the regulation of civil communication by air.

IRISH LANGUAGE. See PHILOLOGY, MODERN.

IRON AND STEEL. For 1921 the U. S. Geological Survey estimated the total amount of iron ore mined in the United States, exclusive of that which contained more than 5.5 per cent of manganese, at 29,547,000 tons, as compared with 67,604,465 tons in 1920. During the year 1921 there were shipped from the mines 27,009,000 tons of iron ore valued at \$39,688,000, a decrease in quantity of 61 per cent and in value of nearly 69 per cent as compared with the shipments in 1920. The average value of the ore per ton at the mines for the whole United States in 1921 was estimated at \$3.32; as against \$4.11 in 1920. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, apparently increased from 11,378,794 tons in 1920 to 13,872,000 tons in 1921, or 22 per cent. The output of iron ore in 1921 was the lowest since 1904, when 27,644,330 tons was mined, and as a matter of fact declined in even great proportion than the consumption.

The Lake Superior district produced about 86 per cent of the iron ore mined and shipped in 1921. Here there was mined 25,394,000 tons while shipments aggregated 23,155,000 tons; decreases of about 56 and 61 per cent, respectively, as compared with the quantities mined and shipped in 1920. The value of the ore shipped in 1921 was estimated at \$81,091,000, a decrease of about 68 per cent. These totals exclude manganiferous ore with more than 5.5 per cent of manganese, being chiefly hematite. The amounts include the ore mined and shipped from the Mayville and the Baraboo mines, in Wisconsin, and ore shipped by rail as well as water from all mines. The stocks of iron ore in the Lake Superior district apparently increased from about 10,366,738 tons in 1920 to about 12,575,000 tons in 1921, or 21 per cent. The average value of the ore at the mines in the Lake Superior district in 1921 per ton was \$3.50; in 1920 it was \$4.25.

After the Lake Superior district come the Southeastern States, which include the Birmingham and Chattanooga districts, where in 1921 there were mined 3,022,000 gross tons of iron ore, a decrease of 55 per cent as compared with 1920. The shipments of ore from these states to blast furnaces in 1921 amounted to 2,946,000 tons, valued at \$6,343,000, a decrease in quantity of 56 per cent and in value of 67 per cent as compared with the previous year. The average value of the ore in these States in 1921 per ton was \$2.15; in 1920 it was \$2.88.

In the group of Northeastern States, made up of New Jersey, New York, and Pennsylvania, in 1921 there was mined 668,000 tons of iron ore, and shipped 444,000 tons, a decrease of 68 per cent from the quantity mined and 79 per cent from the quantity shipped in 1920. The average value of the ore in these States in 1921 per ton was \$2.88; in 1920 it was \$4.90.

The iron-ore producing States in the West, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Washington, and Wyoming, were estimated to have mined and shipped 429,000 tons of iron ore in 1921, a decrease of 42 per cent as compared with 1920. The average value of the ore in this group in 1921 per ton was \$1.96; in 1920 it was \$1.97.

In the other States including Connecticut, Maryland, Massachusetts, and Missouri, where there are small iron mines that produce chiefly hematite and brown ore, about 34,000 tons were mined in 1921, a decrease of 49 per cent as compared with the quantity mined in 1920. The shipments from mines in these States in 1921 were estimated at 35,000 tons, a decrease of 46 per cent from shipments in 1920. The estimated average value of the ore from these States in 1921 per ton was \$3.91; in 1920 it was \$5.09.

Lake shipments aggregated 22,300,726 gross tons as compared with 21,226,591 tons in 1904, with 64,734,198 in the record year 1916, and some 57,000,000 tons in 1920, a decrease of 62 per cent. Taking the average of the ten years prior to 1921 at slightly over 50,000,000 tons the decline in 1921, may be appreciated. Naturally work at the mines early was reduced in the Lake Superior district, and in some cases mines were entirely shut down. In fact half of the ore cargo capacity of the lake vessels was idle and many ore boats did not leave their docks during the season. At the mines wage reductions were in order, the first important movement amounting to a 15 per cent cut taking place on February 1, and later in May and August came further cuts of 20 per cent and 10 per cent, respectively. Outside of the U. S. Steel Corporation mines uniform wage scales to a large extent vanished, and where even work was resumed it was at a reduced scale, and often solely with the object of giving employment to men who otherwise would have been idle. Alive to such conditions in December, some of the large operating companies directed the resident managers to reopen certain properties on the different ranges, and as a consequent result probably from fifteen to twenty mines on the Mesabi, Cuyuna, Gogebic, Menominee, and Marquette ranges were placed in production again on some basis—either reduced wages, reduced time, or both.

Lower ore rates were sought on shipments by rail and decreased dock handling charges also were demanded. As ore shipments were less than the consumption, at the end of 1921 the amount of ore in the lower lake docks and in furnace yards, amounted on Dec. 1, 1921, to 38,300,000 tons as compared with 41,500,000 tons on Dec. 1, 1920.

The production of iron and steel in 1921 in the United States, was the smallest since 1908, the year after the panic of November, 1907. Pig iron production in 1921 was estimated at 16,400,000 tons or about 44 per cent of the 1920 output, while steel ingot production was placed at the end of the year at 19,250,000 tons, or 38 per cent of the total ingot capacity of 50,500,000 tons. Therefore so far as steel was concerned 1921 was a 38 per cent year. The output of steel ingots and steel castings together was probably not far from 19,850,000 tons. Comparison with the five preceding years is made in the accompanying table taken from the *Iron Age* (New York):

	Pig iron, gross tons	Steel ingots and castings, Gross tons
1916.....	39,434,797	42,773,680
1917.....	38,621,216	45,060,607
1918.....	39,054,644	44,462,432
1919.....	31,015,364	34,671,232
1920.....	36,925,987	42,132,934
1921.....	16,400,000 ¹	19,850,000 ¹

¹ Estimated.

There was a great variation in the production of pig iron during the year as will be seen from the following statement of the number and daily capacity of the furnaces in blast at the beginning of each month:

	No. in blast	Daily capacity, gross tons
January 1.....	201	76,540
February 1.....	183	70,500
March 1.....	153	61,850
April 1.....	102	41,530
May 1.....	96	39,105
June 1.....	90	37,085
July 1.....	76	32,195
August 1.....	69	29,175
September 1.....	70	30,170
October 1.....	82	35,650
November 1.....	96	43,500
December 1.....	120	51,665

July a low record of 864,555 tons of pig iron was made, which was the lowest production for 17½ years. In December, 1903, the United States produced 846,695 tons.

The number of furnaces in blast during 1921 declined until August 1, when the low point of 69 was reached. From this point there was a gradual gain with 70 on September 1, 82 on October 1, 96 on November 1, 120 on December 1, and 125 at the end of the year, six new furnaces being blown in during December and one blown out. The 1921 output best can be appreciated by an examination of the figures for daily average production, beginning with January, 1915, as follows:

DAILY AVERAGE PRODUCTION OF COKE AND ANTHRACITE PIG IRON IN THE UNITED STATES BY MONTHS SINCE JAN. 1, 1915—GROSS TONS FROM THE IRON AGE

	1915	1916	1917	1918	1919	1920	1921
January.....	51,659	102,746	101,643	77,799	106,525	97,264	77,945
February.....	59,813	106,456	94,473	82,835	105,006	102,720	69,187
March.....	66,575	107,667	104,882	103,648	99,685	108,900	51,468
April.....	70,550	107,592	111,165	109,607	82,607	91,327	39,768
May.....	73,015	108,422	110,238	111,175	68,002	96,312	39,394
June.....	79,361	107,053	109,002	110,793	70,495	101,451	35,494
July.....	82,691	104,017	107,820	110,354	78,340	98,921	27,889
August.....	89,666	103,346	104,772	109,341	88,496	101,529	30,780
September.....	95,085	106,745	104,465	113,942	92,932	104,310	32,890
October.....	100,822	113,189	106,550	112,482	60,115	106,212	40,215
November.....	101,244	110,394	106,859	111,802	79,745	97,830	47,183
December.....	103,333	102,537	92,997	110,762	84,944	87,222	53,196

The increase in open hearth capacity in 1921 amounted to only 247,500 gross tons and can be compared with earlier years when 675,000 tons were added in 1920 and 625,000 tons were added in 1919. There were 8 open-hearth furnaces completed in 1921 as compared with 20 in 1920 and 9 in 1919. The new open-hearth furnaces completed in 1921 were entirely for independent companies and included at the Bessemer plant one 15-ton converter and a 600-ton mixer of the Steel & Tube Co. of America at Indiana Harbor, Ind.

The additions to open-hearth capacity in 1921 were as follows:

Kansas City Bolt & Nut Co., Kansas City, Mo., 1 50-ton furnace; Follansbee Brothers Co., Toronto, Ohio, 4 40-ton furnaces; National Steel Foundries, Milwaukee, Wis., 2 25-ton furnaces, and Adirondack Steel Foundries, 1 25-ton furnace. The Central Iron & Steel Co., Harrisburg, Pa., enlarged 1 50-ton to a 90-ton furnace last year.

At the end of the year there were six open-hearth furnaces with a total estimated capacity of 217,500 gross tons under construction, as compared with 15 of 430,000 projected in 1921 and with 22 of 875,000 tons in 1920. In 1916 there were 91 furnaces projected but their estimated capacity of 4,265,000 tons per year was less than that of the 72 projected for 1917. This compares with 875,000 tons for 1920 and with 1,130,000 tons for 1919.

New installations contemplated for 1922 were as follows: Mansfield Sheet & Tin Plate Co., Mansfield, Ohio, 4 75-ton furnaces; Kansas City Bolt & Nut Co., 1 50-ton furnace and Ohio Steel Foundry, Lima, Ohio, 1 25-ton furnace. The Central Iron & Steel Co., Harrisburg, Pa., plans to enlarge 1 40-ton to a 90-ton furnace.

The United States Steel Corporation and the various independent steel companies, as well as merchant furnaces producing ferromanganese and spiegeleisen, reported the following totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

PRODUCTION OF STEEL COMPANIES—GROSS TONS

	Total production			Spiegeleisen and ferromanganese		
	1919	1920	1921	1919	1920	1921
Jan....	2,430,022	2,232,455	1,932,159	32,787	23,957	22,228
Feb....	2,209,470	2,181,679	1,625,695	28,105	28,038	29,013
Mar....	2,277,507	2,480,668	1,323,443	26,644	35,275	41,294
Apr....	1,838,677	1,968,542	1,015,621	17,308	27,628	24,310
May....	1,886,805	1,128,720	1,024,678	14,604	33,407	9,232
June....	1,665,944	2,209,770	883,312	14,254	34,761	4,536
July....	1,906,604	2,230,567	716,664	14,805	36,789	5,524
Aug....	2,106,566	2,254,943	807,144	17,419	36,985	3,878
Sept....	1,828,613	2,247,250	815,692	20,631	39,546	3,289
Oct....	1,295,690	2,393,644	1,034,312	20,238	34,786	3,902
Nov....	1,727,656	2,150,075	1,138,789	19,964	26,944	3,525
Dec....	1,916,249	2,047,167	1,276,381	15,718	28,023	3,900

The production of steel ingots during the year 1921 by the thirty companies reporting to the American Iron and Steel Institute was less than half of the output by the same companies during the preceding year and is significant as the companies include 84.20 per cent of the steel-making capacity of the United States. The output from January to December, 1921, inclusive, was 16,826,946 tons, as compared with 34,432,252

tons in 1920, a decrease of 17,605,306 tons, or close to 52 per cent. On a proportionate basis therefore the total output of steel ingots in the United States for 1921 was roughly estimated at 19,984,250 tons, as compared with 40,893,410 tons during 1920, a shrinkage of 20,909,160 tons.

Of the total reported to the institute for the year 1921, 13,125,578 tons were open hearth steel, 3,679,682 were Bessemer, and all other processes comprised 21,686 tons. During December the output of the thirty companies comprised 1,129,174 tons of open hearth, 296,380 tons of Bessemer, and 1539 of other process steel, making in all 1,427,093 tons, as against 1,660,001 tons during November and 2,340,365 tons during December, 1920. The shrinkage in the production of the several grades of ingots during 1921 were, respectively, 13,072,265 tons of open hearth, 4,433,071 tons of Bessemer, and 99,970 tons of "all other."

The high point of ingot production since 1901 was reached in 1917 with an output of 43,619,200 tons, and the 1921 output was the lowest of any year since 1908, a "panic" year, when the production was down to 13,677,027 tons.

The accompanying table shows the monthly production of steel ingots from January, 1920, to and including December, 1921, as reported by the thirty companies reporting to the American Iron and Steel Institute:

	Gross Tons			
	Open hearth	Bessemer	All other	Total
1920				
Jan.....	2,242,758	714,657	10,687	2,968,102
Feb.....	2,152,106	700,151	12,867	2,865,124
Mar.....	2,487,245	795,164	16,640	3,299,049
April.....	2,056,336	568,952	13,017	2,638,305
May.....	2,251,544	615,932	15,688	2,883,164
June.....	2,287,273	675,954	17,463	2,980,690
July.....	2,135,633	653,888	13,297	2,802,818
Aug.....	2,299,645	695,003	5,784	3,000,432
Sept.....	2,300,417	693,586	5,548	2,999,551
Oct.....	2,335,863	676,634	3,485	3,015,982
Nov.....	1,961,861	673,215	3,594	2,638,670
Dec.....	1,687,162	649,617	3,586	2,340,365
Total.....	26,197,843	8,112,753	121,656	34,432,252
1921				
Jan.....	1,591,281	608,276	3,629	2,203,186
Feb.....	1,295,883	450,818	2,796	1,749,477
Mar.....	1,175,591	392,983	2,404	1,570,978
April.....	1,000,053	211,755	2,150	1,213,958
May.....	1,047,810	216,497	1,543	1,265,850
June.....	808,286	193,644	1,476	1,003,406
July.....	689,489	113,312	575	803,376
Aug.....	915,334	221,116	1,621	1,138,071
Sept.....	908,381	205,152	1,207	1,174,740
Oct.....	1,269,945	345,837	1,028	1,616,810
Nov.....	1,294,371	368,912	1,718	1,660,001
Dec.....	1,129,174	296,380	1,539	1,427,093

The consolidation of a number of independent steel companies was actively discussed during the year, and it was recalled that a similar trend was a consequence of the great industrial depression that began in 1893, and resulted in the amalgamations and consolidations in the latter years of that century and early in the twentieth century in 1921 and at the end of the year there was every indication that unprofitable operation would continue for some time. With full opportunity for plant owners and managers to reflect and consider, it was believed that through consolidation there might be secured a saving in overhead and the benefits of mass production through concentrating operations in a given line of product at a particular plant.

The most important consolidation under development at the end of the year involved the following seven companies: Midvale Steel & Ordnance Co., Lackawanna Steel Co., Youngstown Sheet & Tube Co., Republic Iron & Steel Co., Inland Steel Co., Steel & Tube Co. of America, and Brier Hill Steel Co. It was interesting to note that their combined steel ingot capacity was about 20 per cent of the country's total, while that of the Steel Corporation is 45 per cent.

The merger of the Youngstown Sheet & Tube Co., Inland Steel Co., and Steel & Tube Co. of America was also proposed, while a number of smaller mergers and consolidations were preferred. At the end of the year the American Rolling Mill Co. secured the Ashland Iron & Mining Co., Ashland, Ky., with its two blast furnaces, six open-hearth furnaces, sheet mills, and coal and timber lands.

For excellent and obvious reasons during the year 1921 there were few if any serious labor troubles, although there were many reductions in wages at iron and steel works. Early in 1921 there were cuts of 20 to 25 per cent at independent steel mills, but the Steel Corporation kept up its scale later and made its first wage reduction on May 16, amounting to 20 per cent. This reduced common labor from \$5.06 to \$4.05 per day. Salaries were reduced also. Up to that time the Corporation had adhered to its schedule, announced Feb. 1, 1920, which recorded the ninth advance since Jan. 1, 1916. Further evidence of conditions was that the Steel Corporation abolished overtime on July 16 and on August 29 made another reduction, bringing the wage of common labor to \$3 per day. At some Eastern Pennsylvania plants the wages of common labor went as low as \$2 per 10-hour day, or to the level of 1915. At some Central Western works the rate for common labor declined to 25 cents per hour as against 30 cents at Steel Corporation plants. Unemployment was a conspicuous feature in many steel works communities during the year. See UNEMPLOYMENT.

The United States Steel Corporation on Dec. 31, 1921, had on its books unfilled tonnage amounting to 4,268,414 tons or 17,872 tons in excess of the amount on November 30. On Dec. 31, 1920, the unfilled orders amounted to 8,148,122 tons, showing the depression in the steel industry during 1921. There was an increase of business in December, 1921, which promised greater activity during the ensuing year.

The decline in exports in 1921 was also marked and is indicated in the accompanying table:

EXPORTS OF IRON AND STEEL FROM THE UNITED STATES, GROSS TONS

	1918	1919	1920	1921
Jan.....	495,345	360,456	333,601	547,394
Feb.....	440,532	234,793	308,185	393,328
Mar.....	382,195	344,506	417,216	230,635
April.....	465,865	408,204	395,120	162,592
May.....	493,241	447,050	420,359	142,551
June.....	421,963	544,580	402,707	119,081
July.....	457,233	287,823	458,866	86,523
Aug.....	511,858	396,743	431,484	75,827
Sept.....	473,066	363,505	409,200	95,169
Oct.....	388,777	302,456	452,015	106,582
Nov.....	448,716	295,045	434,297	122,290
Dec.....	357,703	254,676	498,765	.....
	5,336,494	4,239,837	4,961,815	2,195,000

¹ Estimated.

ELECTRIC METALLURGICAL IRON AND STEEL. The year 1921 so far as the United States and Canada were concerned, was one of development in the number and use of electric furnaces. In particular there was a larger application to the making of manganese steel castings and to the production of iron castings from electrically melted iron, manganese steel and gray iron castings sharing with plain steel products the newer activity of the year in this field.

From Jan. 1, 1921, when the United States was said to have in operation 356 electric furnaces of all types, and Canada 43, to the end of the year the number had increased to 388 in the United States and 50 in Canada. On July 1, 1913, there were estimated to be only 19 such furnaces in the United States and 3 in Canada. The total number of electric iron and steel furnaces in the world on Jan. 1, 1921, was estimated at 961. A number which by the end of the year had increased above 1000 although figures for Europe and Asia were not available.

The names and types of the different electric steel furnaces in use in the United States and Canada in 1921 are shown in the accompanying table:

TABLE OF THE NUMBER OF ELECTRIC STEEL FURNACES IN THE UNITED STATES AND CANADA, 1921

Type	(From the Iron Age)		Canada, Dec. 31, 1921	U. S. & Canada, Dec. 31, 1921
	U. S. & Canada, Jan. 1, 1921	U. S. Dec. 31, 1921		
Heroult.....	177	164	15	179
Snyder & Von Schlegel ¹	54	52	2	54
Rennerfelt.....	17	18	0	18
Greaves-Etchells.....	25	26	2	28
Grönwall-Dixon.....	12	11	1	12
Ludlum.....	13	13	0	13
Girod.....	5	5	0	5
Booth ²	14	14	0	14
Moore ¹	24	36	0	36
Induction.....	3	3	0	3
Webb.....	2	2	0	2
Stassano.....	1	1	0	1
Greene.....	18	23	0	23
Vom Baur.....	5	6	0	6
Wile.....	0	0	0	0
Detroit.....	1	3	0	3
Volta.....	8	2	11	13
Special, etc.....	20	9	19	28
Total.....	399	388	50	438

¹ Estimated.

² No report; data left same as year ago.

BRITISH IRON & STEEL INDUSTRY. The acute depression in the Iron and Steel Industry in Great Britain during 1921 was such as to be compared in the memories of the older iron masters and trade historians with that of 1879, which marked the most disastrous period that British iron and steel interests ever had been called upon to face. The transition from prosperity to depression was abrupt and the lowest level of production for many years was reached. Prices collapsed and furthermore with disturbed conditions of exchange foreign customers were unable to take their normal proportion of British exports. To make a bad matter worse, continental iron and steel producers were invading British home markets, France, Belgium, and Germany being able to undersell not only in foreign countries but in home territory. This is emphasized by the statement that while in the year ended Oct. 31, 1920, the exports of

pig iron from the Tees were 470,794 tons, in the next twelve months they declined to 125,730 tons. On the other hand, imports which in the same statistical year in 1920 amounted to but 4668 tons, in 1921 increased to 78,293 and towards the latter part of the year imports were far in excess of both foreign and domestic shipments. The high prices were the first circumstance of the ensuing slump, and then came the coal strike which further added to the number of furnaces going out of blast. The industry was thus prostrated and even after work was resumed in October there was less than half the pig iron produced on the northeast coast that was turned out in March just before the strike. In the Cleveland district toward the end of the year 1921, there were only about 24 furnaces in blast as compared with 72 working at the end of 1920. Prices had fallen, for example No. 3 Cleveland G. M. B. pig iron was quoted at 225 shillings at the beginning of 1921 while by December it had declined to 100 shillings. The wage of blast furnace men and ore miners also fell during the year, employees voluntarily submitting to or suggesting reductions below the previous guaranteed minimum. The following table indicates the price changes in shillings during the year so far as they relate to No. 3 Cleveland G. M. B. which is the standard quality upon which all wage ascertainment are based:

1921	Home	Export
January 1.....	225	247½
January 7.....	215	235
January 25.....	215	220
February 1.....	195	200
March 1.....	180	155
April 5.....	120	125
November 1.....	110	115
November 28.....	100	105

Those of the British steel makers that thought the prevailing high prices at the beginning of 1921 would continue were doomed to disappointment. Continental competition began to make its presence felt with ever increasing force, beginning by under-cutting in the sheet trade and soon many foreign markets were lost. There were small cuts of price but not until towards the end of the year was any radical reduction made, and even then many British plants were forced to close for lack of orders. With reduced prices British makers were able to keep some plants partly employed in the manufacture of semi-finished steel, and in shapes particularly some business was done at no profit. Of course there was little call for steel in shipbuilding during the year. The tinplate industry even with falling prices was more active, America being the only competitor of consequence. Here there was considerable export business and Wales was able to sell more cheaply than other producers in the world's markets.

The following comparisons of prices per ton of leading iron and steel products are quoted from the British correspondence of the *Iron Age*.

	Dec., 1920		Dec., 1921	
	£	s.	£	s.
Steel ship plates.....	25	0	10	10
Steel joists.....	24	0	10	0
Steel rails (heavy).....	25	0	10	0
Steel billets.....	15	10	7	10
Marked bars (Staffs).....	33	10	16	10
Tinplates, 20 x 14", basis f. o. b. (per box).....	1	13	1	1

GERMAN IRON AND STEEL INDUSTRY. The German iron and steel industry continued into 1921 the prosperity of the preceding year and concluded the month of December with active business and orders ahead, though confessedly many of these were speculative and likely to be canceled with a change of conditions or markets. At the beginning of 1921 mills were working on old orders and while stocks were ample they were being rapidly turned over. With the exception of coke all raw materials were available in plenty. The anticipated cut in the official prices promised for March was deferred, but other conditions, in large measure political, were influential and demand and prices softened until a minimum was reached toward the middle of May, from which for most products there was reaction. Of course with the decline of German exchange prices rose and there was an active demand.

German exports were active during the year, Holland being the largest consumer, taking about 20 per cent of all iron and steel commodities or 190,431 tons out of a total of 935,319 exported in the period May–September, 1921, that being the only time for which the Bureau of Statistics had assembled full figures at the end of the year. Much material was sent to the Far East, pig iron in large amounts to the United States and railroad track supplies to Northern Russia. The Saar district imported 21,578 tons or 27 per cent of the total of pig iron. The United Kingdom was also a good customer in some months. It was a remarkable fact for the German iron and steel industry that in 1921 profits had rather increased than diminished. For some of the principal works profits and dividends were as follows, figures in parentheses denoting 1919–1920 returns: Phoenix 108,285,000 marks (47,687,500) and 25 (20) per cent Gelsenkirchner Gusstahl, 12,297,000 m. (4,950,600) and 16 (10) per cent. Mannesmann Tube Co., 77,354,500 m. (46,616,600) and 30 (20) per cent. Gutehoffnungshütte, 60,106,000 (40,550,000) m. and 24 (16) per cent. Rheinische Stahlwerke, 19,786,600 m. (14,087,200) and 20 (20) per cent. A. E. G., 81,581,000 m. (44,675,000) and 16 (14) per cent. Prices of commodities in Germany in 1921 meant but little depending as they did upon the value of the mark, nevertheless the accompanying monthly tabulation for different steel products is of interest.

PRICES OF STEEL IN MARKS PER METRIC TON, 1921

	June	July	Aug.	Beginning of Sept.	Oct.	Nov.	Dec.
Billets.....	1,420	1,300	1,600	1,900	2,350	3,600	4,800
Bar iron.....	1,800	1,800	2,050	2,700	3,250	4,200	6,600
Sheets, heavy.....	1,850	1,750	1,900	2,200	2,700	4,100	6,200
Sheets, medium.....	1,900	1,800	1,960	2,500	3,100	4,600	7,400
Plates, light.....	2,000	1,850	2,300	3,100	3,900	5,300	14,000
Wire rods.....	1,700	2,000	2,050	2,700	3,000	4,650	7,300

On the other hand, compared with finished iron and steel products, pig iron increases were distinctly behind all the time except in the last two months. Near the end of the year, prices were again raised by an average of 1000 marks per ton, the new prices being shown in the table below:

from Trieste and Carniola to the Adriatic sea; since the war acquired by Italy. Area, 2035 square miles; population, according to the latest available figures, 404,309. In the Austrian province of Istria, according to the census of Dec. 31, 1910, 43.52 per cent of the inhabitants speak

PRICES OF PIG IRON IN MARKS PER METRIC TON

	Pre-war	Jan., 1919	Jan., 1920	Beginning of May, 1921	July, 1921	Nov., 1921	Dec., 1921
Hematite.....	79.50	314.50	1,718.50	1,816	1,816	2,700	3,891
Foundry, No. 1.....	75.50	250.00	1,324.50	1,560	1,560	2,200	3,326
Foundry, No. 3.....	70.50	249.00	1,323.50	1,484	1,484	2,124	3,250
Steel-making.....	79.00	240.00	977.00	1,535	1,485	1,930	....
Spiegeleisen.....	75.00	240.00	1,017.00	1,708	1,733	2,021	....

Prices for the last two grades had not been announced at the end of the year on account of the readjustment of Siegerland ironstone prices.

There was no question but that the iron and steel industry in Germany in 1921 was conducted with rare sagacity both financial, and administrative and technical. In the first place integration and consolidation were the order of the day, and with the elimination of waste in every possible manner there were a studied effort at cutting production costs by scientific research. Profits were put away in special reserve and sinking funds, reconstruction, new erections and equipment were the regular procedure, and instead of paper currency or book profits every effort was being made to get them reduced to substantial and material form where they would aid both present activities and future development. See METALLURGY.

IRONS, JAMES ANDERSON. Army officer, died in Italy, July 20. He was born at Philadelphia, Pa., Feb. 21, 1857, graduated at the United States Military Academy in 1879 and had risen to the rank of Major of Engineers in the Volunteer Army, June 13, 1898; was honorably discharged in the following year and entered the regular army in which he became Inspector General, Feb. 28, 1901. He was in the campaign against Santiago, Cuba, in 1898 and in the actions at El Caney, San Juan, and the siege of Santiago and served also in the Philippines. In 1907-10 and 1914-17 he was military attaché to the American embassy in Japan and on the outbreak of the late war was military observer in China during the Japanese campaign against the Germans. He was later in command at Camp Lewis, and Washington, Camp Greene, N. C., and the embarkation camp at Camp Merritt, N. J., in 1918. In the course of the same year he was also at Camp Beauregard, La., Camp McClellan, Ala., and Camp Gordon, Ga. After Feb. 24, 1919, he was General of the recruiting service.

IRRIGATION. See RECLAMATION AND DAMS.

ISRAEL, ROGERS. Bishop, died, January 11. He was born at Baltimore, Md., Sept. 14, 1854, and graduated at Dickinson College, Pa., in 1881. He was ordained priest in the Protestant Episcopal Church in 1886 and was rector for several years at Meadville, Pa., and Scranton, Pa., respectively, till 1911 when he was consecrated bishop of the diocese of Erie, Feb. 24, 1911. He served as a deputy in five general conventions.

ISTRIA. Formerly a crownland of the kingdom of Austria, consisting of a peninsula extending

Croatian; 38.15 per cent, Italian; 3.3 per cent, German. Capital, Capodistria, with a population of about 9000 in 1910.

ITALIAN. See PHILOLOGY.

ITALIAN SOMALILAND. The territory on the east coast of Africa constituting a colony and three protectorates of Italy, extending from British Somaliland to the Juba river. Area, about 139,430 square miles; population, about 650,000. The colony, formerly called Benadir, is now officially termed Southern Italian Somaliland. The three protectorates are: The Sultanate of the Mijertins, extending from the Gulf of Aden to Cape Gabbee on the Indian ocean; the territory of the Nogal, lying between Cape Gabbee and Cape Garad; and the Sultanate of Abbia, extending from the latter point to the northern boundary of the colony. The budget for 1920-21 balanced at 10,977,000 lire. The protectorates are each under an Italian commissioner, resident at its capital; and the colony is under a civil governor, resident at Mogadisho, the capital. Governor at the beginning of 1921, Carlo Riveri.

ITALY. A constitutional monarchy of southern Europe, comprising: Italy, proper, the islands of Sardinia, Sicily, Elba, and about seventy small islands, together with territory on the eastern coast of the Adriatic acquired under the treaty of St. Germain and by arrangement with Jugoslavia in 1920. Area before the war, 110,632 square miles; population, estimated Jan. 1, 1915, 36,120,118. For details relating to Italy before the war, see preceding YEAR BOOKS. The population was estimated in 1920 at 36,099,657. The area acquired by Italy under the treaty of St. Germain was placed at 7350; and the population at 1,408,296. The emigrants in 1919 numbered 243,417 of whom 144,524 went to European or Mediterranean countries and 98,893, to countries overseas. Italians returning to Italy in 1919 numbered 89,081 of whom 9025 were from the United States. Capital, Rome, with a population estimated, Jan. 1, 1915, at 590,960. Other large cities: Naples, 697,917; Milan, 663,059; Turin, 451,994; Palermo, 345,891.

EDUCATION. No later figures for elementary education were available than those given in the preceding YEAR BOOK which placed the public elementary schools in 1916 at 120,196 with 75,993 teachers and 3,792,024 pupils. In 1917-18 the students in the universities numbered 33,798.

AGRICULTURE. The following table shows the acreage and production in hundred-weights of the principal crops for 1919 and 1920:

	Acreage		Produce in cwts.	
	1919	1920	1919	1920
Wheat.....	10,894,000	11,262,000	92,296,000	76,932,000
Barley.....	486,500	500,000	3,626,000	2,556,000
Oats.....	1,142,750	1,172,500	10,080,000	7,032,000
Rye.....	276,500	285,750	2,322,000	2,306,000
Maise.....	3,757,250	3,753,250	43,498,000	45,366,000
Rice.....	329,250	279,750	9,734,000	9,024,000
Beans.....	979,000	1,068,000	5,948,000	5,190,000
Potatoes.....	770,250	725,500	27,726,000	28,446,000
Sugar beetroot.....	107,500	115,000	28,000,000	24,000,000
Vines ¹	10,759,000	.....	726,000	930,468
Olives ¹	5,736,750	.....	352,000	418,000

¹ Produce in thousand gallons.

There was a prolonged drought in 1921 which seriously affected winter wheat and indicated an increase in the imports of foreign grain in the following year. Another effect of the drought was the shortening of working hours owing to the insufficient water supply for hydro-electric purposes.

ECONOMIC CONDITIONS. On August 1 Italian official records showed a total of unemployed in the country of 315,000 men, 98,000 women—a total of 413,000. This included all classes of workers, industrial, agricultural, and office employees. The increase of unemployed was 163,000 since May 1 and 26,000 since July 1. The total was approximately equal to April, 1919. Metal working, textile and building industries were the ones apparently most affected. On November 1 unemployment was placed at 492,000; and it was reported, besides, that 130,000 were working on part time. The number of unemployed, December 1, was 512,000. To relieve the situation the government appropriated 268,000,000 lire, to be expended on bridges, roads, hydraulic works, and other public works. One of the consequences of the drought was the lack of sufficient water supply to continue industrial plants at full running capacity. This reduced the number of working hours considerably in certain industries. There were a number of important strikes during the year, the last being that of the metal workers' union in the Trieste district, which seriously affected the shipyards. An agreement was reached with the manufacturers in December.

COMMERCE. Statistics covering Italy's foreign trade during 1920 indicated considerable progress when compared with those covering the past few years, although it was not yet possible to reach the equilibrium between imports and exports established in prewar years. Imports for 1919 were 16,624,000,000 lire, and for 1920, 15,861,000,000. Exports for 1919 were 6,065,000,000 lire, and for 1920, 7,803,000,000. The increase of nearly 2,000,000,000 lire over 1919 in export values is not to be attributed to any increase in the productive activity of Italian industries, but rather to the high prices caused by the depreciation of the lira, since the rate of exchange favored exports to the same extent that it discouraged imports. On the other hand an appreciable reduction in import values had the effect of reducing the commercial balance deficit for 1920 to a little more than 8,000,000,000 lire, while in 1919 and 1918 the deficit amounted to 10,600,000,000 and 12,700,000,000 lire, respectively.

The United States still continued to lead by a large majority all other nations in the matter of imports, having furnished Italy during the year under review with 30 per cent of total imports,

although her position had considerably weakened when compared with 1919, in which year 44 per cent of total imports came from the United States. France, on the other hand, nearly doubled her imports into Italy, having sent across the frontier goods to the amount of 1,333,000,000 lire as against 710,000,000 lire in 1919. Great Britain showed a gain of 35,000,000 lire over the previous year. The somewhat large decrease in import values from the United States is accounted for not only by the low value of the lira in relation to the dollar but also by the reopening of old markets in ex-enemy countries. In the matter of exports more or less notable gains were made to all countries, with the exception of France and Tripoli, the largest increases being to the Argentine Republic, Switzerland, the United States, Brazil, Egypt, British India, and Spain, in the order named.

In 1913 Italy imported from Germany goods to the value of 612,464,000 lire and exported to Germany goods to the value of 338,338,000 lire. The corresponding figures for 1920 were 821,536,000 and 380,274,000, respectively. In general the trade had resumed its prewar course. From the above figures it appears that the total imports into Italy increased in value 34.2 per cent over those in 1913 while the exports to Germany increased only 12.4 per cent. The difference was chiefly due to the heavy depreciation of the mark in terms of the lira throughout 1920. For commercial treaties, see below under *History*.

FINANCE. According to the estimates of Italian economists in April, the average inhabitant applied about 18.28 of his mean annual income to the payment of taxes or to charges resulting from government monopolies. Of this percentage 7.17 consisted of direct taxes and surtaxes on income and property, and 6.82 consisted of indirect taxes on articles of consumption and state monopoly receipts, the rest being taxes on property transfers and business operations and taxes imposed by provinces and communes. This average was based on a population of 37,000,000 and on estimates indicating that the total national income came to 60,000,000,000 lire.

The budget figures for three years with their deficits are as follows:

Years ending June 30	Total revenue, lire	Total expenditure, lire	Difference, lire
1918-19.....	22,080,185,522	33,470,204,060	— 11,390,018,538
1919-20.....	5,699,765,528	6,259,482,860	— 559,717,332
1920-21 ¹	12,349,018,815	24,988,792,859	— 12,639,774,044

¹ Estimates.

The chief sources of ordinary revenue, according to the budget estimates for the year ending June 30, 1921, were: The tobacco monopoly, income tax, registration tax, excise, stamps, customs, post office, and succession duties. At the close of the year the financial situation was improving but estimates of future needs were doubtful inasmuch as great differences had been shown between the budget estimates for the fiscal year ending June, 30, 1921, and the actual results obtained. To meet the deficit an increase of taxation on farm property was under consideration.

SHIPPING. The merchant marine of Italy

comprised 747 steamships of 624,125 tons (Jan. 1, 1918); and 4464 sailing vessels of 261,769 tons (Jan. 1, 1917). In November, 1920, there were under the control of the Italian government 610 steamships of 2,428,466 gross tons.

RAILWAYS. In December, 1920, the date of the latest available data, the total mileage of the Italian railways was 11,749 miles. In the annexed regions, Venesia Giulia and Venesia Tridentina, there were about 528 miles and 328 miles, respectively, which were owned by the Austrian Railway Company "Sudbahn Gesellschaft" but which were operated by the Italian State Railway Administration. The question of transferring the shares owned by the Austrian capitalists to the Italian State Administration was under discussion during the year. The Italian railways, it will be recalled, were owned and operated by the government, as the State in 1905 took over the railways in Italy and Sicily, with the exception of only very few secondary lines which were still under private ownership. The Sardinian railways were acquired in 1915.

The Italian railways since 1915 had been operated at a loss and it was estimated that for the year 1920-21 the loss would be \$280,000,000, the revenues being about \$600,000,000 and the expenses \$880,000,000. Although in Italy, as elsewhere in Europe, freight and passenger rates were increased with a view of reducing the 1920-21 deficit and eliminating any possibility of a deficit in 1921-22, the result was not increased revenues but a reduction in traffic. During January and February, 1921, the passenger traffic decreased from 23 to 58 per cent as compared to the traffic of November and December, 1920; during the same period freight traffic decreased by about 50 per cent.

In Italy as elsewhere also there was a large increase in the number of railway employees. These had increased in number from approximately 150,000 on June 30, 1914, to 211,000 on March 31, 1921, or an increase of 41 per cent. At the end of 1921 the increase was about 67 per cent. In the year 1913-14 there were 1243 employees per million train-kilometres and in 1921 there were 1878. This matter was so important and vital that at the end of the year a special committee made up from the House of Representatives and the Senate, as well as representatives of the government employees, appointed by the government to reorganize the railway administration with a view to reducing expenses, was endeavoring to make a large reduction in the number of railway employees.

Freight rates were increased by 400 per cent above the rates of 1915 while the passenger fares were increased, for first-class, 350 per cent; second-class, 250 per cent; and third-class, 120 per cent. A law was passed for the reorganization of the freight railway tariff. The old tariff, approved in 1884, had 770 items for the classification of the freight, while the new tariff has only 77. The new schedule followed the Belgian system.

It was the general consensus of opinion that railway rates were too high to serve a useful purpose as commerce was being reduced or being shipped by motor trucks which in many cases handled freight at about one-half the rail rates.

In Italy schemes for electrification were actively under consideration and plans were being dis-

cussed to involve some 3000 miles of line. These plans naturally depended upon the development of hydro-electric stations as Italy of course has no coal of its own. In 1915 there were 329 hydro-electric plants of over 300 horsepower and these produced 935,000 horsepower. In 1920 there were 383 such plants with 1,152,120 horsepower capacity, while in 1921 there were under construction 54 additional plants with a capacity of 359,210 horsepower. Furthermore plans had been made for still further plants with about 950,000 horsepower capacity though this work had been impeded and delayed by the prevailing bad financial conditions, both national and commercial.

There was a notable increase in the mileage of railways under electric operation and where in August, 1920, there were 235 miles of such line, by June, 1921, there had been added 56 miles. It was estimated that by June, 1922, another addition of 213 miles would be made, making a total of 504 miles. On Jan. 1, 1922, work involving 521 miles of line was to be started in northern Italy, connecting Genoa, Pisa, Florence, and Bologna. The electrification of the line between Bologna and Milan (134 miles) was authorized during the year.

The various large electrification schemes which would be in operation by July, 1922, it was estimated, would effect a saving of 1000 tons of coal per day.

There was a diversity of systems installed and under construction. In northern Italy the three-phase at 16 cycles was to be used whereas in central Italy the system was to be three-phase at 46 cycles. In southern Italy, use will be made of continuous current.

One note of the year was the improvement in passenger-train service on the Italian State Railways. The railway administration improved the running time of trains between Rome and other principal cities of Italy, at the same time increasing the number of trains and adopting schedules which would eliminate delay in making connections. On October 26, communications between Rome and Berlin was shortened by six hours, two trains following the Bologna-Brenner route and covering the distance in 40 hours, instead of 46 as heretofore.

To stimulate passenger traffic, various reduced combination, trip, tourist, and commercial tickets were placed on sale.

With the deficiency of rolling stock Italy benefited when the conference of the states of the former Austro-Hungarian Monarchy at Cortorose decided that 2000 Austrian cars were to be transferred to the Italian State Railway Administration.

ARMY. Military service is compulsory and universal, beginning at the age of twenty and lasting for nineteen years. The period of service in the permanent army is two years for all arms and after that the men are transferred to the reserve for eight years and then for four years to the mobile militia, after which they remain for seven years in the territorial militia. Each army corps consists of two divisions, and each division of two brigades of infantry, each having three battalions along with artillery, engineers, and auxiliary services. The strength of the active army, Jan. 1, 1921, was placed at 250,000 men. Considerable Italian forces are stationed in Libya, Eritrea, and Italian Somaliland.

NAVY. The following table from the *Statesman's Year Book* of 1921 shows the classification of vessels at the beginning of 1921:

	Completed at end of		
	1919	1920	1921
Dreadnaughts.....	5	6	5
Pre-Dreadnaughts.....	6	6	4
Armored cruisers.....	5	5	5
Protected cruisers, scouts, and flotilla leaders.....	23	23	20
Torpedo gunboats, etc.....	4	4	2
Destroyers.....	48	50	49
Torpedo boats.....	74	74	86
Submarines.....	73	80	50

GOVERNMENT. Executive power is vested in the king, acting through a responsible ministry; and legislative power, in the king and parliament, the latter body consisting of two chambers, namely, the senate composed of princes of the royal family, 21 years of age or over, and an unlimited number of members, nominated by the king for life; and the chamber of deputies containing 508 members, elected on the basis of universal suffrage, male and female, and proportional representation. The number of enrolled electors in 1919 was 11,415,441. The chamber after the elections of May, 1921, was distributed as follows: Constitutionalists, 275; Socialists, 122; Catholics, 107; Communists, 16; Republicans, 7; Germans, 4; Slavs, 4. The ministry at the beginning of 1921 was constituted as follows:

President of the Council and Minister of the Interior.—Signor Giovanni Giolitti; Foreign Affairs, Signor Carlo Sforza; Colonies, Signor Luigi Rossi; Justice and Ecclesiastical Affairs, Signor Luigi Fera; Treasury, Signor Ivanoe Bonomi; Finance, Signor Francesco Tedesco; War, Signor Rodino; Marine, Signor Giovanni Secchi (Senator); Public Instruction, Signor Benedetto Croce; Public Works, Signor Peano (Liberal); Agriculture, Signor Micheli (Catholic); Industry and Commerce, Signor Giulio Alessio; Labor, Signor Arturo Labriola; Posts and Telegraphs, Signor Pasqualino Vassallo; Minister of the Liberated Provinces, Signor Giovanni Raineri.

HISTORY

CHANGE OF MINISTRY. On April 6 the king dissolved parliament and ordered new elections which were held, May 16, with the following results: Coalition (Giolitti Bloc), including Liberals, Liberal Democrats, and Progressives, 265; Socialists, 134; Popular party (Catholic), 101; Republicans, 10; Nitti Liberals, 15; Slavs, 6; Germans, 4. The Giolitti ministry resigned, June 27, on account of attacks on the policy of the prime minister when he had been foreign minister in his negotiations with Jugo-Slavia, and a new government was formed under Bonomi.

THE FASCISTI. During 1920 as an offset to the Red movements, a scattering, voluntarily organized movement came into existence whose principles were known as the *Fascisti*. They had no definite programme and were in fact of widely differing political views but they were in general animated by a strong national spirit. This spirit was illustrated by the Fiume episode which was the occasion of many patriotic demonstrations. The name *Fascisti* was taken from the Latin *Fasces*, and they took the Roman emblem of an axe in a bundle of rods as the official sign of the

movement. After the Fiume affair the *Fascisti* directed their efforts to counteracting the designs of the extreme Communists and Socialists. (An account of the terrorism exercised by the Red groups will be found in the preceding *YEAR BOOK*.) The provinces that suffered most were Emilia and Romagna, where a dictatorship of the proletariat was set up after the armistice and lasted for two years. In these provinces which were solidly socialistic, landowners and their agents were boycotted and a system characterized as communistic government by blackmail came into existence. The central government was regarded by many as criminally negligent and to supply the necessary vigor of action the *Fascisti* organized a repressive movement in these northern provinces against the abuses of the radicals. Bands of young men seized Socialist headquarters and terrorized in their turn the Socialist population. At the time of the election in May the *Fascisti* were reputed to have organizations in all the towns of northern and central Italy.

INDUSTRIAL DIFFICULTIES. On January 25 a plan of control over the great industries by the workers themselves was published by the prime minister as a means of bringing to an end the conflict between labor and capital. The Communists and the patriotic organization known as the *Fascisti* came into conflict, February 28, in Florence, Palermo, and Spezia. On April 29 the *Fascisti* made an attempt to seize the government of Fiume. Another severe conflict took place between the Communists and the *Fascisti* at Rome, July 28, on the occasion of a general strike. Early in November there was a strike on the railways which resulted in disturbances in Rome. The strike was followed by a declaration of a general strike, and the city for a time was without newspapers, the employees in the newspaper offices having joined the strikers. The movement was largely directed against the *Fascisti*, the trades unions declaring their intention to continue the strike until all the members of the *Fascisti* had left the capital. On November 12 a collision took place in the streets of Rome between the railway workers and the *Fascisti*, resulting in the killing of four persons and the wounding of thirteen. There was a printers' strike at Rome in November which resulted in four days of rioting, in the course of which six persons were reported killed and over one hundred, wounded. It came to an end November 14.

POLITICAL CONDITIONS. In general there was a more conservative spirit in evidence during 1921 and comparative calm in political circles. The Popular or Catholic party condemning the extremists who had wished to unite with the Socialists and the expression of the liberal views on the part of the Vatican tended to support the government. The Communists appeared to be losing ground. Their attempt to develop a military organization which would offset the *Fascisti* proved unsuccessful, being put down by the government police so effectively that the *Fascisti* had no excuse for violence. Parliament began its recess, August 6. One of the members of the Parliamentary group of *Fascisti* issued a statement in which he sought to explain their programme and prevent misunderstandings. Attempts of the Communists to spread their propaganda were offset to some extent by the agitation

of the moderate Socialists, and at Turin where a Communist dictatorship had been set up the Socialists came into conflict with them and got the better of them. On August 20, the Communists issued a manifesto calling a general strike. This was opposed by the Labor Confederation which formerly had been on the side of the radical element. A Socialist Congress was appointed to meet at Milan in October.

Fiume. Gabriele D'Annunzio who in December, 1920, had persisted in resistance against the Italian government left Italy for Paris, Jan. 18, 1921, after the opposition of Fiume was overcome by the Italian troops and the new government set up. A constituent assembly was held in Fiume, April 24 and the Nationalists were completely defeated. The end of the Fiume adventure was marked by the definite withdrawal on September 7 of the soldiers of D'Annunzio, and the Italian authorities took command. The other powers were assumed by a special Italian commissioner who began the work of organising the government of Fiume.

FOREIGN AFFAIRS. Progress was made in removing causes of friction between Italy and Jugo-Slavia through the work of commissions under the treaty of Rapallo. One of these problems, namely, the fishery question which involved Italian fishing rights on the Dalmatian coast was regulated on October 14 by an agreement signed by Italian and Jugo-Slav commissioners. According to this the Italian fishermen were to possess the same rights that they had acquired under the agreement between Italy and Austria in 1906 provided that the catch was taken to Italian markets. Another problem was that of Porto Baros which was turned over to the Fiume government to be adjusted directly with the Jugo-Slav government. During the year there were evidences of a spirit of good-will toward the United States, and it was understood that Italy would support President Harding's programme in the coming Disarmament Conference.

The Italian and French governments drew further apart in their respective policies during the year, and there was evidence of ill-feeling among both populations as well as unfriendliness on the part of official classes. For details, see the articles, **FRANCE**, **WAR OF THE NATIONS**, and **TUNIS**. As to the outbreaks among the people as on the occasion of the French military visit (see **FRANCE**) and similar incidents, they led to no open rupture and were explained away. There were unfriendly demonstrations before the French embassies and consulates at Rome, Turin, Naples, and other cities, November 25-28, which arose from an alleged remark made by M. Briand to the disparagement of the Italian army which was subsequently denied by competent authorities. The tone of press comment both in Italy and in France continued to be bitter to the close of the year.

A treaty with the Russian Soviet government was under consideration in the latter part of the year. Progress on it was retarded by the action

of the executive commission of the Moscow Third International which on November 15 condemned the Socialist Congress in Milan for having failed to proscribe certain Italian Socialists whose course was disapproved by the Russians. After the Chamber opened on November 24 it was learned that a treaty had been concluded with the Angora government of the Turks similar to the one negotiated in London in the spring, but unratified.

At last the commercial agreement between Italy and Soviet Russia was signed, December 26, including the following provisions: Free import and export by both Powers, and the use of the ports; abstinence from propaganda; renewal of trade with the exception of the prohibition of alcoholic liquors in Russia; return of Italian subjects from Russia; freedom of post and telegraphic communication in Russia; termination of all forms of blockade and boycott. Italy entered into a similar agreement with the Ukraine republic.

COMMERCIAL TREATIES. The commercial treaty with Germany went into operation on August 31 with the understanding that it was to endure nine months, after which it was to be renewable unless either of the contracting parties chose to terminate it at a month's notice. Its main object was to facilitate the import and export of food, clothing, and the necessities of manufacture. A trade agreement with Russia was signed on the same day corresponding in general to the agreement between Great Britain and Russia. At the close of the year commercial agreements were concluded with Germany, Czecho-Slovakia, Poland, and Russia. The last named was provisional only and was to go into effect pending negotiations for a new commercial treaty. The commercial treaty with France was denounced by the French government during the year. See **FRANCE**.

THE ROMAN QUESTION. In the autumn there were reports of a definite settlement of the long-standing question of the relations between the Italian government and the Holy See, but the specific terms were not in evidence. There had been a reconciliation under the Nitti Ministry between the papal representatives and the foreign office and it was said that this was satisfactory to the Vatican. There had been cooperation between the Government and the Church in the affairs of the East.

IVORY COAST. A French colony forming a constituent part of the government-general of West Africa, and situated between Liberia and the British Gold Coast. Area, estimated at from 121,976 square miles to 125,000 square miles; population, about 1,407,030 of whom 1030 were Europeans. Capital, Abidjan; formerly, Bingerville. The chief products are: Palm kernels, palm oil, cocoa, rubber, and mahogany. No later figures for foreign trade were available than those given in the preceding Year Book.

I. W. W. See **INDUSTRIAL WORKERS OF THE WORLD**.

J

JACKSON, FREDERICK HUTH. Director of the Bank of England, died in Sussex, England, December 3. He was born April 26, 1863, educated at Harrow and Oxford and became a partner in a large banking house. He was president of the Institute of Bankers 1909-11.

JACKSON, HENRY. British educator, died, September 25. He was well known as a Greek scholar, having been professor of Greek in Cambridge after 1906. He was born at Sheffield, England, in 1839; graduated at Trinity College, Cambridge, in 1862; and was soon afterwards made assistant tutor at Cambridge, and continued at the university throughout his life. He wrote various translations from the Greek, and contributed largely to the classical journals, works of reference, and Transactions of the Cambridge Philological Society.

JACOBY, VICTOR. Hungarian composer of light operas, died in New York, December 10. He was born in Budapest, in 1884. His first opera was *Die Stolze Prinzessin* (Vienna, 1906). In 1913 he came to the United States, where, in the following year, his *Marriage Market* scored a decided success, which was even surpassed by *Sybil* (1916). In collaboration with Fritz Kreisler he wrote *Apple-Blossoms* (1919). Shortly before his death his last work, *The Love Letter*, was produced.

JAMAICA. A British colony comprising the island of Jamaica which is the largest of the British West Indies, and the following dependencies: Turks and Caicos Islands; Cayman Islands, Morant Cays, and Pedro Cays. The area of Jamaica is 4207 square miles; of the dependencies, 224 square miles. Population, estimated Dec. 31, 1919, 893,580. Capital, Kingston, with a population (1911) of 57,369. Public elementary schools in 1919-20 numbered 694 with an average attendance of 60,001. Acreage under cultivation in 1919-20, 1,099,345, distributed as follows: Under tillage, 306,690; pasture, 792,665; sugar cane, 47,568; coffee, 22,894; bananas, 63,168; coconuts, 37,260; cocoa, 17,662; ground provisions, 75,346; guinea grass, 154,922; mixed cultivation, 39,963; commons, 637,733. The exports in 1919-20 were valued at £5,627,328, and the imports at £5,085,615. The chief imports in 1919 were: Flour, cotton goods, and fish; and the chief exports: Bananas, coconuts, logwood, logwood extract, sugar, coffee, rum, and cocoa. Total tonnage entered and cleared in 1919, 2,084,942. Revenue, 1919-20, £1,802,773; expenditure, £1,444,818. Railway mileage, 197¼. Governor at the beginning of 1921, Sir Leslie Probyn. During the year the government of Jamaica authorized the government railway, built with a standard gauge track, to extend its line a distance of nine miles from Chapeltown.

JAMESTOWN, N. Y. See MUNICIPAL GOVERNMENT.

JAPAN. An empire in the Far East. Capital, Tokyo.

AREA. Exclusive of claims pending as the result of the war the empire consists of Japan proper, Korea (Chosen), Formosa (Taiwan), Karafuto, Kwantung, the Pescadores and many other groups of islands. The chief islands of Japan proper are first of all Honshiu or Mainland and next Kuishiu, Shikoku, and Hokkaido or Yezo. The total number of islands composing the empire is placed at nearly 4000, and the total area at 260,738 square miles of which 160,042 are made up by the larger islands and island groups.

POPULATION. The census as announced, March 1, gave the total population of Japan, Korea, Formosa, and Sakhalin as 77,005,112 of which 55,961,140 was the population of Japan proper. The following table supplied by a Japanese authority shows the area and population of the four main islands which constitute Japan proper:

	Area	Population (1900)	Population per sq. mile
Mainland.....	87,426	42,822,773	489.7
Shikoku.....	7,083	3,065,925	432.9
Kuishiu.....	15,703	7,593,245	483.5
Hokkaido.....	30,502	2,379,097	77.9

The average density was 396.2 per square mile, and, counting out Hokkaido, was 485.2, which made it the most densely populated country in the world with the exceptions of Belgium and Holland. The increase by decades since 1870 is shown in the following table:

Year	Number	Decennial increase
1870.....	33,110,796	3,012,954
1880.....	36,358,955	3,248,159
1890.....	40,718,677	3,359,722
1900.....	45,446,369	4,727,692
1910.....	51,753,934	6,307,565
1920.....	55,961,140	4,207,206

The seven largest cities with their populations in 1920 are as follows: Tokyo, 2,173,162; Osaka, 1,252,972; Kobe, 608,628; Kyoto, 591,305; Nagoya, 429,990; Yokohama, 422,942; Nagasaki, 176,554. Down to June 30, 1917, the number of Japanese who had emigrated came to 450,773 and of these 228,178 were living in the United States. The foreigners in Japan, Dec. 31, 1918, numbered 19,500 of whom 12,139 were Chinese, 2404 English and 1837 American.

QUESTION OF SURPLUS POPULATION. The subject of Japan's population in connection with the question of finding her the means of expansion was under constant discussion during 1921 and was involved in many contradictions. There was general agreement in the view that the time was fast approaching, if not already at hand, when the present limits of the empire would not hold her expanding population. Accepting this point of view, writers were constantly asking where the Japanese were to find countries of settlement, for the United States, Canada, Australia, and

New Zealand, which were obviously the countries that could absorb the Japanese surplus, were closed to them. Many pointed to Latin America as a promising field, but here was the danger that the United States would construe the Monroe Doctrine as implying the right to prevent the turning of a Latin into an Oriental civilization in her neighborhood. In general the most practicable solution was believed to be the settlement of the Japanese on the Asiatic mainland and many argued that Manchuria and Eastern Siberia should be opened to her for the purpose, these countries being thinly populated and in many wide stretches not populated at all. Arguments against this were brought to bear by American publicists. The plan seemed to them to be based on the false idea that Japan having the superior civilization had a right to impose it on Russians and Chinese—an idea greatly discredited in view of its working out in latter-day imperialism. It was also argued that in view of Japan's rapid transformation into an industrial state there was far less need than was commonly supposed of additional territory and that she might even be kept approximately within her present limits. Vital statistics of recent years were cited in support of this opinion. For example it was pointed out that the change to industrialism had reduced the birth rate of Prussia to one-sixth and of England by one-fourth from 1880 to 1910.

The population of the empire includes 18,000,000 or 20,000,000 Koreans. The total number of Japanese throughout the world has been placed as low as 56,000,000. The rate of increase generally quoted has been that of the year 1911, when it stood at 15.08 per thousand which was exceeded only by the increase in Germany and in Roumania before the war. The census of 1918, however, showed that the ratio of increase was only 5.84. Assuming that the latter figure is correct, at the present time the surplus population does not offer any such problem as has been implied. If the rate continued to diminish in the same degree the population of Japan would be stationary within four years. The mere increase of population therefore is not the thing that causes the difficulty. The serious point is the change to an industrial and manufacturing country, as noted above. Following the same course that England followed after 1830, agriculture has relatively declined. In 1921 the cultivated area was at a standstill or decreasing. Despite the efforts of the government to encourage the cultivation of land, comparatively few Japanese were induced to go into farming. Among Japanese economists it was predicted that in seventy years the agricultural land under cultivation would be only one-seventh of its present area. Now with the transformation of the country into an industrial power, more than double the population could be supported in it. A vast amount of raw materials and of fuel were needed and the Japanese naturally turned their attention to the Asiatic continent in the hope of securing them. To many Japanese the best chance of doing so lay in the organization and equipment of China. This necessity for raw materials lay behind the aggressive foreign policy under Marquis Okuma and later governments. During the premiership of Okuma in 1915 he declared that it must not be forgotten that the island empire is now a continental power. According to many authorities the pressure of popu-

lation was more than one million annually; according to others about six hundred thousand; and according to official figures available in 1921 about three hundred thousand. As to density the figure commonly given is 350 to the square mile, but this is misleading owing to the fact that over half the area of the country under present conditions is apparently uncultivable and the density of the greater part of the country has been given at about 2000 to the square mile, but even this density is much less than that of the province of Shantung in China where it is given at 3000 to the square mile. Nevertheless, it was repeatedly said that Shantung afforded the natural outlet of Japan's overflow of population. Another point of some significance in respect to Japan's need of territory is the fact that although the government has spent in the last fifty years \$300,000,000 in aiding emigration to the northern island of Hokkaido or Yezo, the population remains only 600,000 showing a density of only about 10 per cent of that for the main island. This comparatively undeveloped region has resources of lumber, fisheries, etc., with a coast line of 1500 miles and an area of 30,000 square miles. The climate is not unlike that of New England and the maritime provinces of Canada. In like manner state-aided emigration to southern Manchuria has failed. On the other hand, the Chinese are found everywhere along the eastern coast of Asia from the Arctic Circle to the equator, and in the island of Java, for example, there is a larger number of prosperous Chinese than of Japanese in all the islands of the South Seas put together. In South Manchuria according to the reports of travelers, the Japanese population was not increasing and there was doubt whether the settlement of Korea was a success. These facts were taken as an indication that the Japanese could not adapt themselves readily to different climates and that the area of permanent settlements available to them was extremely limited.

Among the Japanese themselves there were many who believed that this whole outcry over excess population was unfounded. For example, a leading Japanese newspaper of Tokyo declared that there was no population question of that sort in Japan and that it was wrong to think that there was a surplus population, for while the population was increasing at a healthy rate there was a constant addition to the wealth of the country and it would be reasonable to say that the population really fell short of the needs of the country. In certain parts, indeed, there was actual suffering from the scarcity of farm labor. Signs pointed to the steady decrease of the Japanese population on the mainland and there was evidence that many of the Japanese who had settled there during the last ten years in the hope of bettering themselves, had returned home. Some writers on this subject argued that if there was any necessity for Japanese expansion it should be directed to South America where the Japanese colonies, especially those in Brazil, had been successful. It did not appear from the Japanese accounts that they themselves were confident of solving their problem by discharging their surplus population into Manchuria and Siberia. The following points, for example, were brought out by the Japanese publicist K. K. Kawakami. Being one of the most densely populated countries in the world, and having only a small

percentage of agricultural land, the need of expansion was obvious. Korea, Formosa, and Southern Manchuria did not afford the necessary outlet. This was not because of the unsuitable climate as certain writers have said, but because those countries were already thickly populated, Korea having a density of 203.9 per square mile, Southern Manchuria having about the same, and Formosa, a density of 405.5. A further difficulty was that in Korea and Formosa the Japanese would have to compete with peoples whose standard of living was lower than their own; and the same was true of China. The Japanese would not go either to China or to Korea in large numbers. When they referred to the need of an outlet in

Crop	Acreage		Produce (quarters)	
	1918	1919	1918	1919
Rice.....	7,569,880	7,761,527	34,187,000	38,011,352
Wheat.....	1,392,000	1,371,267	4,053,420	3,975,529
Barley.....	1,372,090	1,335,697	5,200,800	6,146,922
Rye.....	1,562,269	1,615,906	5,249,130	4,762,934
Tobacco....	65,290	61,097	840,776	736,292
Tea.....	121,675	122,107	762,300	742,695

The area under wheat in 1920 was 1,299,149 acres and the production 29,101,624 bushels. Figures published in June, 1921, indicated a falling off of the mineral production of Japan. The following table shows the output in the first six months of 1920 and 1921, respectively, and for the month of June in each of those two years.

JAPANESE MINERAL PRODUCTION

Minerals		June		January-June	
		1920	1921	1920	1921
Gold.....	ounces..	18,000	21,000	126,000	124,000
Silver.....	do....	420,000	357,000	2,570,000	2,330,000
Copper.....	pounds..	11,900,000	10,200,000	73,100,000	61,000,000
Iron.....	metric tons..	4,870	3,100	34,000	18,400
Coal.....	do....	2,220,000	1,840,000	13,400,000	11,900,000
Petroleum.....	gallons..	7,040,000	7,480,000	44,400,000	45,100,000
Sulphur.....	metric tons..	3,700	2,700	22,000	13,000

Eastern Asia, they did not mean a movement of immigration, but only the access to natural resources in China, Siberia, and Manchuria, whence they might obtain the necessary raw materials for their industrial life. In other words, they sought the means of expansion for their capital rather than for their population, because the country was suffering as much from the lack of raw materials as from overpopulation and the scarcity of land. Japan's future lay in her development as a great industrial and trading nation, but there was a special obstacle in her way in the lack of raw materials, particularly iron, coal, and oil.

Other publicists professed this belief that the demand for territory in which to expand really did not imply the intention to settle permanently but that it meant only that the Japanese desired to exploit these regions and believed that a full control of them was necessary for that purpose. It was argued that the Japanese wished to enter these countries as a directing class and secure the advantage of developing and managing industry. The above summary while indefinite is a fair illustration of the sort of discussion which was carried on throughout the year.

EDUCATION. The elementary schools in 1915-16 numbered 25,578 with 182,992 teachers and 7,454,652 pupils. There are five imperial universities and eleven others. The largest in point of attendance according to the figures for 1919-20 were: The Keio University at Tokyo, with 5810 students; the Tokyo Imperial University, 5233; Waseda University, 4100; Hosei University, 2700; Meiji University, 2600.

PRODUCTION. On January 1, the taxed land owned by individuals and local corporations was 15,286,246 cho (1 cho equals 2.4507 acres) of which 2,922,575 were under rice; 2,501,785 for other cereals; 8,043,889, forests; 1,336,545, plains; 50,966, pasture. The following table from the *Statesman's Year Book* of 1921 shows acreage and production of the principal crops in 1917 and 1918:

ECONOMIC CONDITIONS. The following information was supplied by the U. S. Bureau of Foreign and Domestic Commerce: As rice is the basis of Japanese diet, there was considerable fear that the price might rise to such a point as to cause a repetition of the 1918 rice riots during this winter. High rice prices, by increasing the cost of living, threatened to raise still further the cost of production through demands for higher wages, especially as the labor movement in Japan experienced a remarkable recovery since early spring, when it was apparently in very bad shape owing to the industrial depression. Labor leaders were greatly encouraged by their successes, while the rank and file appeared to grow more belligerent and insistent upon their demands. The central labor union was reorganized and its name changed from "Yuai-kai" (literally translated as "Benevolent," and probably adopted at a time when the authorities frowned and suppressed anything resembling a labor organization) to "Nihon Rodo Sodomei-Kai," frankly, "The Japan Labor Federation." During all the strikes called in the summer a noticeable increased solidarity among the workers was evident. Numerous strikes occurred, affecting many and varied industries, and in the majority of them labor won at least partial victories. All told, there were some 100 strikes in Japan during the summer months, involving over 120,000 workers, while during the first six months of the year there were but 78 strikes, participated in by less than 10,000 employees.

COMMERCE. The table at top of page 392 from the *Statesman's Year Book* of 1921 shows the imports and exports by countries in 1919 and 1920:

In 1921 the imports of articles wholly manufactured during 1921 showed very little reduction from the 1920 values, but the value of exports of articles wholly manufactured had decreased nearly 50 per cent. There was also a marked reduction in the net imports of gold and silver coin and bullion, which amounted to only 137,346,000 yen in 1921

Countries	Imports from		Exports to	
	1919 Yen	1920 Yen	1919 Yen	1920 Yen
Australia.....	56,635,307	62,459,492	30,825,658	58,117,282
Belgium.....	49,285	3,964,376	3,430,975	4,311,226
Egypt.....	16,004,502	13,262,899	15,912,420	30,635,779
British America.....	6,126,416	5,051,478	24,839,558	21,557,828
British India.....	319,477,561	394,930,301	116,878,729	192,250,187
Straits Settlements.....	28,209,944	17,137,422	29,844,374	35,730,275
China.....	322,100,628	218,088,988	447,049,267	410,270,499
France.....	8,831,291	14,481,830	66,813,482	71,652,630
French Indo-China.....	124,124,826	20,618,843	1,544,164	3,444,853
Germany.....	258,584	15,116,853	68,643	1,064,632
Great Britain.....	127,541,962	232,215,514	111,343,465	97,797,246
Dutch India.....	65,522,500	68,628,794	57,354,854	107,225,428
Holland.....	3,166,549	6,281,304	1,468,388	7,900,318
Hawaii.....	284,456	263,024	8,612,540	13,262,491
Hongkong.....	1,536,891	2,231,586	39,153,821	74,066,243
Italy.....	731,148	2,116,981	6,398,415	6,376,564
Philippine Islands.....	15,530,278	16,404,811	18,556,179	34,376,388
Chile.....	13,823,479	24,679,330	3,290,467	2,222,326
Asiatic Russia.....	4,924,982	3,831,684	70,958,261	22,880,772
Sweden.....	11,284,691	17,382,667	731,879	414,866
Siam.....	29,937,129	3,245,115	3,528,254	4,200,736
Switzerland.....	8,643,598	9,194,985	406,007	135,636
U. S. of America.....	766,381,438	873,177,075	828,097,621	565,017,806

as against 400,849,000 yen in 1920. These heavy imports of treasure in the face of a pronounced excess of imports were a marked feature in Japan's foreign commerce the last two years, a feature, however, which was gradually eliminated during the latter half of 1921, since such net imports amounted to only about 26,200,000 yen during this period, December imports being only about 30,000 yen compared with 25,090,000 yen in January, 1921.

Formosa consisted of 2838 steamships of 2,694,804 gross tons; 13,505 sailing vessels, European model, of 930,534 tons and 939 sailing vessels, Japanese model, of 300,067 koku.

RAILWAYS. The total railway mileage in 1919 was given at 8014 of which 6072 was state line. In 1906-07 when the policy of nationalization of the Japanese railways came into effect there were joined to the state-owned nucleus of 1500 mi. 3000 mi. of previously privately-owned and

FOREIGN TRADE OF JAPAN FOR 1920 AND 1921

Months	Imports		Exports	
	1920 Yen	1921 Yen	1920 Yen	1921 Yen
January.....	204,767,626	105,230,841	176,347,594	75,067,060
February.....	270,642,804	119,268,152	174,267,903	76,689,354
March.....	329,027,977	136,953,067	193,570,438	94,104,873
April.....	296,832,436	139,438,860	217,457,376	115,534,792
May.....	295,950,151	149,882,799	193,368,057	105,370,285
June.....	220,183,849	148,115,736	183,810,465	107,086,313
July.....	157,133,507	110,270,436	154,318,203	98,662,570
August.....	123,197,912	132,058,874	175,060,832	105,522,740
September.....	117,600,158	129,166,068	154,354,594	95,843,770
October.....	107,670,007	* 130,448,000	133,814,491	* 111,605,000
November.....	108,022,941	* 153,790,000	104,606,115	* 121,284,000
December.....	105,145,413	† 161,000,000	87,403,543	† 146,000,000
Total.....	2,336,174,781	† 1,615,600,000	1,948,394,611	† 1,252,800,000

* Preliminary official figures subject to slight modification.

† Preliminary figures received by cable.

FINANCE. According to figures said to have been submitted to the Finance Department, the budget of Japan for the fiscal year 1922-23 totaled 1,662,000,000 yen, an increase of 81,000,000 yen, or 4.6 per cent, over the estimates for the fiscal year 1921-22, increases being shown in all departments except the Foreign Office, which showed a decrease of 3,000,000 yen, or 11.5 per cent, and the Navy Department, with a decrease of 23,000,000 yen, or about 4.6 per cent. In view of the retrenchment policy, it was expected that this preliminary budget figure would be considerably reduced. On November 8 the deficit for the last fiscal year was reported by the prime minister at 13,000,000 yen.

SHIPPING. The total shipping entered in 1919 was 12,959 vessels of 22,823,476 tons, and the vessels cleared 13,004 of 23,120,301 tons. Of the steamships entered in 1919, 3,566,280 tons were British; 1,206,506, American; and 16,781,321 tons Japanese. The merchant marine exclusive of

operated lines. Later to this combination of 4500 mi., there were added some 1500 mi. of lines, built or purchased, so that in 1921 the nationalized mileage approximated 6000 mi. This, with 2000 mi. remaining in the hands of private owners and operators, constituted the connected lines of the Island Empire.

The state in Japan has always been active in the development of transportation, though the co-operation of private capital and enterprise was encouraged from time to time, chiefly because it was the surest and quickest way for providing promptly the mileage for which urgent demands had rapidly developed. The right of state purchase was reserved in case of any grant of permission for private construction. With such government ownership and control a highly efficient policy of standardization had been developed and the operation of the Japanese railways was made even more systematic and profitable.

The programme for Japan's government rail-

ways, as announced during the year, called for an expenditure of \$278,000,000 for new construction and \$432,500,000 for improvements during the ensuing ten years. During the year 1920 some 200 miles of new line were built and during the fiscal year 1921 it was estimated that an additional 260 miles would be built.

On Jan. 1, 1921, freight rates were increased by 28 per cent. The gross revenue for the fiscal year 1920 totaled some \$102,500,000 from passenger traffic and \$66,000,000 from freight traffic. It was interesting to note that further nationalization of railways in Japan had become somewhat subordinate to those privately owned, for the latter had increased greatly. In June, 1921, 2021 miles were in operation, while the government had granted permits for the construction of some 3000 miles.

During the year 1921 active progress was made with both the general scheme of electrification for the Japanese railways, as well as for special projects. In the Department of Railways a new electric bureau was established and a systematic plan was being developed along revised lines. The first work decided on was to prepare for electrification the entire Tokaido line and then a part of the Central line, the work to be extended in due course to all other lines. The full plan as developed by the Department of Railways was to be completed and presented through the cabinet to the Diet. The selection of the Tokaido line was doubtless due to the fact that here traffic had been increasing greatly each year and adequate accommodation facilities were lacking for the transportation of passengers and freight. Even as an immediate measure to expedite the service, automatic signals had been installed, but it was thought, however, that soon the traffic capacity of the railways would be found inadequate to meet the needs of the increasing business.

The Tokaido line runs from Tokyo to Kobé. The next step in electrification proposed was for a part of the Central line between Iidamachi station in Tokyo and Kofu in the rear of Mount Fuji, where many tunnels make transportation slow. Electric trains were to be used exclusively for passengers, freight trains continuing to be operated by steam.

DEFENSE. According to estimates of the United States War Department in 1920 the total military forces of Japan numbered 1,645,000, of which 273,000 constituted the permanent army. The following list from the *Statesman's Year Book* of 1921 shows the distribution of the vessels in the navy at the beginning of 1921;

	Completed at end of		
	1919	1920	1921
Dreadnaughts.....	9	9	11
Pre-Dreadnaughts.....	13	13	13
Armored cruisers.....	12	12	12
Light cruisers.....	12	13	13
Torpedo gunboats, scouts, etc.....	5	4	4
Destroyers.....	92	100	105
Torpedo boats.....	26	26	30
Submarines.....	39	43	40

See NAVAL PROGRESS, AND WAR OF THE NATIONS, section on *Disarmament Conference*.

GOVERNMENT. The executive power is in the emperor who acts with the advice and assistance of a ministry responsible to and appointed by him; and legislative power is in the emperor and a

legislature or imperial Diet of two houses consisting of a House of Peers and a House of Representatives. The House of Peers with 373 members is composed of members of the imperial family, princes, marquises, counts and other members of the aristocracy, certain persons nominated for eminent services, etc. The House of Representatives has 381 members. The distribution among parties at the last election preceding 1921 was as follows: The Sayukawai or government party, 281; the Kenseikai, 109; the Kokuminto or Popular party, 29; the Koshin Club, 25; Independents, 19. The ministry at the beginning of 1921 was constituted as follows: Prime Minister, Takashi Hara; Interior, Takejirō Tokonami; Foreign Affairs, Count Yasuya Uehida; War, General Giichi Tanaka; Marine, Admiral Tomosaburō Katō; Finance, Baron Korekiyo Takahashi; Justice, Count Ōhki; Agriculture and Commerce, Tatsuo Yamamoto; Education, Tokugorō Nakabashi; Communications, Utarō Noda; Railways, H. Motoda.

HISTORY

FOREIGN RELATIONS. The chief features of Japan's foreign relations, especially with China, are discussed in the article WAR OF THE NATIONS, where also will be found an account of Japan's share in the Disarmament Conference.

THE QUESTION OF SHANTUNG. There was no change during the year in the deadlock between China and Japan over the question of Shantung. Japan through her official authorities repeatedly declared that she was willing to negotiate on the subject with China. The Chinese government refused to negotiate since that would imply the acceptance of certain principles to which it objected. The Japanese foreign minister and the Japanese Ambassador to London renewed the expression of Japan's willingness to negotiate at the beginning of the year. In a statement before the Assembly of the League of Nations on January 2, the latter declared that negotiations were difficult on account of the internal disorders in China and said that trade in Shantung must be opened and that Japan must determine how it should be opened and what guarantees to that end must be obtained. There was prolonged discussion of the Shantung question throughout the year. According to Japanese authorities the situation in Shantung was as follows: The Japanese government aimed only at procuring for Japanese citizens the privilege of making use of the natural resources of Shantung. The proposals of the Japanese in 1921 before the meeting of the Disarmament Conference involved the return to China of the leased territory of Kiaochow, with an area of 200 square miles, the whole to be placed under Chinese administration, Japan not claiming any exclusive or international administration for any portion of it, although she expected that the usual extra-territorial rights would be recognized for foreigners, and she asked in return that China should open the territory to foreign trade. As to the mainland, Japanese desired the Shantung railway, 245 miles long, and the mines pertaining to it to be worked as a joint enterprise by Japanese and Chinese capital, represented on equal terms. Japan abandoned to the International Finance Consortium of which the United States was a prominent member such concessions as Japan had obtained for the following three

lines: Tsinan-Shunteh (160 miles); Kaomi-Shu-chow (220 miles); Weichien-Yentai (150 miles). Japan renounced all special preferences granted to Germany in regard to employment of foreigners and foreign capital in accordance with the Japanese signature to the Treaty. She agreed to withdraw her troops which now were guarding the railway from Tsinan, as soon as China was ready to replace them. She agreed to hand over to China all public property used for administrative purposes within the leased territory. The customs house at Tsingtao was to become a part of the customs system of China. These were the proposals which Japan made to China, Sept. 7, 1921. Although they did not fully meet the Chinese demands, it must be remembered that Japan had not taken this property and these rights from China, but had taken them all from the Germans, whom she had expelled from Shantung at the cost of 2000, killed and wounded, and \$15,000,000, at a time when China, owing to her internal troubles, was unable to dislodge them. The general spirit of Japanese arguments was that her demands in the circumstances were most moderate, in view of her service during the war, and in comparison with what European nations had claimed in the past at Chinese expense, and would probably claim at the present time if they were in the position of Japan.

SIBERIA. Japan's policy in Siberia was attacked in the diet by Viscount Katô, January 24. This followed a declaration early in the month by Viscount Uchida that it was to be hoped that conditions in Siberia would be sufficiently stable to permit Japan to withdraw her troops from Vladivostok and the coast provinces. The prime minister replying to Katô's attack said the occupation of certain districts in Siberia continued to be necessary to Japan's interests. On January 8 an American lieutenant, W. H. Langdon, was shot by a Japanese sentry at Vladivostok. This brought complaint from the United States which was followed by an expression of regret from the Japanese government. See WAR OF THE NATIONS.

NATIONAL DEFENSE. There was a strong current in Japan against undue expenditures on the army and the navy and this showed itself in parliament on February 8 when an opposition member offered a resolution for cutting down military expenditures and naval armament and proposed a disarmament conference with the United States and Great Britain. The proposal for reduction was defeated by 245 to 38, the majority insisting that conditions in China and Siberia made it unsafe to retrench army and navy outlays. A vote of confidence was taken in which the government was supported by 259 to 141.

JAPANESE POLICY IN KOREA. The official view of the government's course in Korea was summarized by Admiral Saito, governor-general of the province in 1921, who was appointed to that office in 1919, the very year when Korean discontent took the form of open revolt and one of the first indications of disaffection was the public protest of students after the funeral of Prince Yi against Japanese annexation. Riots followed in the neighborhood of Seoul but the rioters were for the most part unarmed. As a measure of pacification the government promised a programme of reforms but at the same time took energetic measures to suppress the spirit of revolt which tended more and more to threaten an actual

insurrection. The trouble was increased by Bolshevik influence from Siberia. Gradual and more or less effective revolutionary organization was developed showing the work of expert leadership which was plainly inspired from Siberia. The government discovered the centres of insurrection and on August 17, 1920, captured one of the most important of them at Phyonyang, after a severe battle. The most troublesome regions were along the Manchurian frontier, rebel bands entering the country by way of Antung and Chien-Tao. According to the governor-general the internal riots were not the result of native discontent but were staged by revolutionary committees outside the country. A party of independence was created abroad and was encouraged by the Korean immigrants in the United States and Honolulu. It fell under the influence of the Russian revolutionaries. The situation became critical with the organization of the so-called Provisional Government of Korea at Shanghai. Nevertheless the government did not embark on a policy of indiscriminate repression. It sought to restore peace by measures of reform including one that was opposed by the military party, namely, the substitution for the gendarmes of a body of police designed rather to prevent disorder than to chastise it. This reform, according to the governor-general, had brought excellent results, the people themselves aiding the police in keeping the peace; and he took much credit to the administration for this policy of engaging the natives themselves in the work of pacification. It also created mixed provisional and communal commissions whose Korean members were elected by the population, this measure being regarded as the first step toward self-government. Complete self-government, however, could not be granted until after a long interval. Another feature of the new governor-general's policy was to found schools, in the belief that the more Japanese schools there were in Korea, the better for Japan. In 1921 the average was one school for three villages. Down to that time, it had been necessary to require the police to recruit the pupils, but there were signs that the Koreans were becoming more confident and were beginning to send their children to the Japanese schools of their own accord. As to the material situation, it had greatly improved during the seven years of Japanese occupation. Rice production had risen from 8,000,000 to 15,000,000 koku (one koku equals 180 litres). Means of transport had not kept pace with this development and the sum of 16,000,000 yen was estimated as required for the completion of roads that had been projected, and four years was given as the period within which the railway programme would be carried out. The government was bearing the cost of the principal lines but the branch lines would be delayed because of the economic crisis in the mother country in 1920. In 1921 the budget was placed at 2,000,000,000 yen. The government was taking steps to develop the natural resources, but here again the condition of the mother country's finances retarded progress. As to the tax, the large share was borne by the Japanese residents of Korea. It was estimated that a Japanese family in the colony had to pay from 12 to 23 yen for schools and sanitation, while a Korean family paid only from 12 to 13 yen for the same services.

NEW MINISTRY. The Prime Minister Hara (q. v.) was assassinated. On November 13 a new ministry was formed under Baron Korekiyo Takahashi, who had been Minister of Finance in the Hara cabinet. He continued to hold this portfolio in addition to the office of Prime Minister. The Minister of Foreign Affairs was Viscount Uchida. The choice of the new Premier was taken to indicate the continuance of the peaceful foreign policy of the preceding ministry and its opposition to the militarist groups. The new Premier had taken a decided stand in the latter respect some months before when he criticised the General Staff of the army for concerning itself too much in diplomatic affairs. As to foreign policy he had declared that the opening up to Japan of the great resources of China was imperative but that Japan should renounce the 21 demands and should adopt a constructive economic policy in respect to China.

THE REGENCY. The crown prince, Hirohito, was appointed regent, November 24, by imperial decree, his father, Emperor Yoshihito, having been long incapacitated by illness. The emperor had already in May, 1920, given over some of his functions to the crown prince, and in the spring of 1920 he had sent him on a visit to Europe. On his return the prince was received with great public enthusiasm. He was born in April, 1901, and proclaimed heir apparent in 1912 when his father became emperor, and he was consecrated crown prince in 1916.

ATTITUDE TOWARD THE CONFERENCE. Various reports were published at the close of the year indicating popular ill feeling toward the United States among the extreme element. The decisions of the Washington Conference were denounced at a mass meeting of an anti-American society at Tokyo, December 18 and there were threatened demonstrations against Americans. Several of the papers condemned the naval agreement as imposing a ratio unfair to Japan. The opposition party in Parliament addressed questions to the government implying distrust of the Conference and the belief that the Four-Party treaty would lead to the interference of the United States and other Powers in the Far East. This view was attacked by the government spokesman, who declared the criticism unfounded, and soon afterwards the Prime Minister laid a special emphasis in a public address on the importance of the decisions reached at Washington. He said that the Four-Party treaty was much wider in its bearing than the Anglo-Japan Alliance and removed all chances of war and that the Conference had opened a new epoch on the Pacific and in the world. He believed that as a result the burdens of the Japanese people would be lightened and the position of Japan strengthened in the Far East. It was understood at the close of the year that Japan held fast to her position in respect to property rights in Siberia, including the coal properties in the northern portion of Sakhalin.

JARNEFELT, MAIKKI. See MUSIC, Artists, Vocalists.

JASTROW, MORRIS. Orientalist and university professor, died, June 22. He was born at Warsaw, Poland, in 1861; came to Philadelphia in 1866 and graduated at the University of Pennsylvania in 1881 after which he studied at Leipzig and in Paris. On returning to Philadelphia he was made professor of Semitic languages and librarian

in the University of Pennsylvania. He wrote extensively for the learned periodicals within his field and was a recognized authority on Semitic religions, languages, and literature. Among his works may be mentioned *The Religion of the Babylonians and the Assyrians* (1898); *The Study of Religion* (1902); *Aspects of Religious Belief and Practice in Babylonia and Assyria* (1911); *Hebrew and Babylonian Traditions* (1914); *The Civilization of Babylonia and Assyria* (1915); *During and After the War; The War and the Bagdad Railway* (1917); *The War and the Coming Peace* (1918); *The Gentle Cynic* (1919); *Zionism and the Future of Palestine* (1919). He also edited series of hand books on the history of religion and contributed largely to works of reference. He was the editor of the department of Semitic archaeology to the NEW INTERNATIONAL ENCYCLOPEDIA contributing many of the articles.

JENKINS, JAMES GRAHAM. Judge, died at Milwaukee, Wis., August 6. He was born at Saratoga Springs, N. Y., 1834, and was admitted to the New York bar in 1855. He moved to Wisconsin and practiced law in Milwaukee until 1888. He was circuit judge in Wisconsin 1893-94, and presiding judge of the United States Circuit Court of Appeals 1901-05, when he retired. For several years he was Dean of the College of Law at Marquette University. He attracted public attention by his issue of an injunction on Dec. 8, 1893, forbidding the employees of the Northern Pacific Railway from combining to strike against the reduction of wages. This led to an attempt of the labor leaders to impeach him but it did not succeed.

JERITZA, MARIE. See MUSIC, Opera.

JERNINGHAM, CHARLES EDWARD WYNNE. British journalist, died in London, February 7. Under the pen-name of "Marmaduke" he contributed for twenty-two years a regular letter to the *London Truth*, and for fourteen years a weekly article to the *London Graphic*. He was born, March 26, 1854; and studied at Beaumont and Stonyhurst. He was one of the founders of the Self-Help Immigration Society, and was active in the Commons and Footpaths Protection Society, and the Coal Smoke Prevention Association. He was the founder of the Art Collectors Association. He published *Maxims of Marmaduke* (1910); and *The Bargain Book* (1911). He was made the editor of *Vanity Fair* (London) in 1912.

JERSEY CITY, N. J. See MUNICIPAL GOVERNMENT.

JEWS. POPULATION. The following estimates of the Jewish population of the world by continents based largely on prewar estimates were prepared by the Bureau of Jewish Social Research for the *American Jewish Year Book* for 1921-22:

Continent	Jewish population
North America.....	3,379,668
South America.....	118,667
Europe.....	10,439,191
Asia.....	434,332
Africa.....	380,668
Australia.....	19,415
Total.....	14,771,931

According to another Jewish authority, Mr. Davis Trietsch, the total was somewhat in excess of that, being 15,430,000. Jews in the United States were placed by the Bureau of Jewish Social

Research at 3,390,301, in 1918, an increase of 1,613,116 since 1907. The following table shows distribution by States in each of those years according to the same authority:

States	Estimated 1907	Estimated 1918	Increase
Alabama.....	7,000	11,086	4,086
Alaska.....	.....	500	500
Arizona.....	500	1,013	513
Arkansas.....	3,085	5,012	1,927
California.....	42,000	63,652	21,652
Colorado.....	6,500	14,565	8,065
Connecticut.....	22,000	66,862	44,862
Delaware.....	1,600	3,806	2,206
District of Columbia.....	5,100	10,000	4,900
Florida.....	3,000	6,451	3,451
Georgia.....	9,300	22,414	13,114
Hawaiian Island.....	100	150	50
Idaho.....	300	1,078	778
Illinois.....	110,000	246,637	136,637
Indiana.....	12,000	25,833	13,833
Iowa.....	6,000	15,555	9,555
Kansas.....	1,500	9,450	7,950
Kentucky.....	10,000	13,362	3,362
Louisiana.....	12,000	12,723	723
Maine.....	5,000	7,387	2,387
Maryland.....	41,000	62,652	21,642
Massachusetts.....	90,000	189,671	99,671
Michigan.....	16,000	63,254	47,254
Minnesota.....	13,000	31,462	18,462
Mississippi.....	3,300	3,881	581
Missouri.....	82,000	80,807	28,807
Montana.....	1,500	2,518	1,018
Nebraska.....	6,500	13,547	7,047
Nevada.....	300	503	203
New Hampshire.....	1,000	3,257	2,257
New Jersey.....	70,000	149,476	79,476
New Mexico.....	800	858	58
New York.....	905,000	1,603,923	698,923
North Carolina.....	1,500	4,915	3,415
North Dakota.....	1,000	1,492	492
Ohio.....	85,000	166,361	81,361
Oklahoma.....	1,000	5,186	4,186
Oregon.....	6,000	9,767	3,767
Pennsylvania.....	150,000	322,406	172,406
Philippine Islands.....	100	500	400
Porto Rico.....	100	200	100
Rhode Island.....	12,000	20,502	8,502
South Carolina.....	2,500	4,816	2,316
South Dakota.....	300	1,262	962
Tennessee.....	10,000	14,034	4,034
Texas.....	16,000	30,839	14,839
Utah.....	1,000	3,737	2,737
Vermont.....	1,000	2,221	1,221
Virginia.....	10,000	15,403	5,403
Washington.....	5,500	9,117	3,617
West Virginia.....	1,500	5,129	3,629
Wisconsin.....	15,000	28,531	13,531
Wyoming.....	300	498	198
Total.....	1,777,185	3,390,301	1,613,116

The ten leading cities of the United States according to the *American Jewish Year Book* are as follows:

City	Jewish population estimated 1918	General population estimated as of Jan. 1, 1917	Per cent Jews to total	Per cent of total Jewish population
New York.....	1,500,000	5,670,167	26.45	45.45
Chicago.....	225,000	2,521,822	8.92	6.81
Philadelphia.....	200,000	1,750,000	11.43	6.06
Cleveland.....	100,000	750,000	13.33	3.03
Boston.....	77,500	767,589	10.09	2.34
Baltimore.....	60,000	595,000	10.08	1.81
St. Louis.....	60,000	850,800	7.05	1.81
Pittsburg.....	60,000	590,000	10.16	1.81
Newark.....	55,000	401,000	13.71	1.66
Detroit.....	50,000	825,000	6.06	1.51
Total.....	2,387,500	14,720,578	16.21	72.34

For table of Jewish population by countries, see preceding *YEAR BOOK*. This gave the largest

totals to the following countries: Poland, 4,100,000; the Ukraine, 3,300,000; Germany, 500,000; Hungary, 450,000; Czecho-Slovakia, 349,000; United Kingdom, 275,000; Lithuania, 250,000.

THE ZIONIST CONGRESS. The twelfth Zionist Congress held its session at Carlsbad in September. There was much dissension among the members, but the session ended with a vote of confidence by a considerable majority in the executive committee. The majority of the Congress were somewhat dissatisfied with the present situation. It was admitted, of course, that great progress had been made since the last Congress held eight years before. While at that time Zionism was confined to a small circle of Jews, it was now a definite world movement and an important element in the Eastern question. Nevertheless, the hope of many members had been disappointed. There was, for example, much uncertainty in respect to the status of Palestine. On Nov. 2, 1917, Mr. Balfour in the celebrated address which had so stimulated the hopes of the Zionists, promised to create a national home for the Jews in Palestine. The condition of such an establishment was the migration of large numbers into the region. Now, Sir Herbert Samuel, High Commissioner in Palestine, had recently made a statement, apparently representing the policy of the British Government, in which he spoke only of some Jews who might come to settle in Palestine. This was most unsatisfactory to the majority of the Zionists. Furthermore, they were disturbed by a later decree of the High Commissioner resulting from recent events at Jaffa which reduced immigration to a very narrow limit. There were other causes of discontent. Various riots in Palestine showed that it was hard to maintain order in the country; the British garrison was small and it was not possible to count on the local recruits who were likely at any moment to join the rioters. There was a division in the Congress into two factions, one directed by Dr. Weizmann, and the other by Mr. Louis Brandeis of the United States Supreme Court, and President of the Zionist organization of America. The question had been raised why in view of the disturbances in Syria the executive committee had not secured from Great Britain (the mandatory power) the reestablishment of the Israelite Legion which would easily have maintained order. When that Legion existed in Palestine there were no such troubles. The two factions differed in respect to the methods which should be employed in this emergency and in certain other respects. The party represented by Dr. Weizmann believed that the promises of Mr. Balfour would be realized in the long run in spite of present difficulties—in short, that Great Britain and the other responsible Powers would keep their word. The vote of confidence indicated the approval of the Congress of this more optimistic view of the situation and of the policy of improvement favored by Dr. Weizmann. In accordance with the latter the Congress undertook to work out plans for the development of the Jewish agricultural colonies now in Palestine and for the creation of new ones; also for the irrigation and electrification of the country and the establishment of a land bank, a school of medicine, etc. See PALESTINE.

EASTERN EUROPE. Some figures were issued at the close of the year by an officer of the Relief

Committee of the Ukraine. 'According to these, there were in Bessarabia about 30,000 Jewish refugees without homes. In Poland, 28,951 Jewish orphans were cared for by the Warsaw bureau during the first seven months of 1921. In the region of Rovno, Poland, 6000 orphans whose parents had been massacred were reported. In Poland as a whole, the registered Jewish refugees, according to an officer of the central Relief Committee of Warsaw, numbered 50,000, and those in Roumania 60,000 to 70,000. Reporting on these conditions he declared that villages in which the Jews constituted 80 or 90 per cent of the population had been entirely destroyed. The Jewish population of the Ukraine had suffered indescribable hardships. Persons of all classes, including the wealthiest, were reduced to beggary and it was reported that there was hardly a single Jewish child under seven years of age left in the Ukraine. Probably twice as many Ukrainian Jews had died from exposure or disease as had been massacred. According to the president of the Jewish Relief Committee, November 27, 50 per cent of all houses belonging to Jews in Eastern Europe had been destroyed and about 90 per cent in the regions where they had especially suffered, namely, Eastern Poland, Galicia, Lithuania, Roumania, and southern Russia.

JOHNS HOPKINS UNIVERSITY. A non-sectarian institution of the higher learning for men, bft admitting women to certain courses, at Baltimore, Md.; founded in 1876. In the fall of 1921 there were 3361 students enrolled and in the summer session, 949. The teaching staff numbered 444. The classification of students was as follows: Graduate School of Arts and Sciences, 291; Medicine, 349; Hygiene, 96; College of Arts and Sciences, 393; Engineering, 313; College Courses for Teachers, 1011; Evening Courses: (1) Business Economics, 660; (2) Technical subjects, 248. President, Frank J. Goodnow, LL.D.

JONES, KENNEDY. British journalist and Member of Parliament, died in London, England, October 20. He was well known as the editor of the *Evening News*. It was he who opened the way for Alfred Harmsworth, afterwards Lord Northcliffe, to his journalistic career, obtaining for him an option on the purchase of the *Evening News* when it was in financial difficulty. Harmsworth carried out the plan and after purchasing the paper brought it into great prominence. Shortly before the war Mr. Jones gave up his journalistic work to go into politics and during the war he was engaged in the Ministry of Food and the Ministry of Transport. He was the author of *Fleet Street and Downing Street*.

JONES, MABEL CRONISE (MRS. THOMAS McDOWELL JONES). Author, died in 1921. She was born at Tiffin, Ohio, June 18, 1860, and after a high school education went into newspaper work at Toledo. She was editor of the children's page of Philadelphia and Pittsburg newspapers and legislative correspondent at Harrisburg. She was prominent in the various associations of the State especially the Centre Pennsylvania Suffrage Association of which she was president after 1911. For fifteen years she served as regent of the Daughters of 1812. Among her writings may be mentioned: *Gettysburg* (1902); *Six of Them* (1902); *Dolly's College Experiences* (1909); *Achshah* (1911); *In Days of Old* (1912); *Rome's Fall* (1915).

JONES, WILLIAM AMBROSE. Roman Catholic bishop, died at Philadelphia, Pa., February 17. He had been bishop of Porto Rico after Feb. 24, 1907. He was born at Cambridge, N. Y., July 21, 1865; graduated at Villanova College, Pa., in 1887; and was ordained priest in 1890. After serving as parish priest from 1890 to 1895 at Philadelphia, he became professor of English and mathematics at Villanova College. In 1899 he was placed in charge of the first English-speaking Catholic church in Cuba. He was afterward president of the College of St. Augustine, Havana.

JORDAN, JOHN WOOLF. See NECROLOGY.

JUGO-SLAVIA. A new state with a republican form of government formed after the war out of component parts of the old Austro-Hungarian monarchy, consisting of: Old Serbia; New Serbia Slovenia; Croatia and Slavonia and other parts of Hungary; Bosnia and Herzegovina; and Dalmatia. The estimated area in 1920 was 95,628 square miles, and the estimated population, 11,337,686, including Montenegro, which though its destination was doubtful at first was united with greater Serbia after the death of the former King Nicholas, March 1, 1921. The chief towns with their population in 1919 are: Belgrade, the capital, 120,000; Zagreb or Agram, 80,000; Ljubliana, 60,000; Sarajevo, 50,000; Novi Sad, 40,000; Spert, 30,000; Nich (1910), 24,949.

PRODUCTION AND COMMERCE. Interests are largely agricultural. In 1921 the harvest was poor. According to an official estimate, the 1921 crops in metric tons were as follows: Corn, 1,800,000, wheat, 980,000, barley, 270,000, oats, 300,000, rye, 150,000, and potatoes, 950,000. In every item there was a decline from the 1920 crop totals, the whole averaging about 20 per cent. The cause for this was said to be the long drought, although railway conditions and the risks imposed on the farmers by an unsettled policy respecting exports may have had an adverse effect on sowings. Jugo-Slavia's immense resources of raw materials have been very little exploited because of lack of labor and capital. The wood industry holds first place in the country, one-third of which is covered with forests. The textile industry is still in a primitive condition. It had in 1921 some 60,000 spindles and 2500 looms. The clothing and carpet industry are important in Serbia, but these enterprises were suffering especially from lack of cotton. The iron industry was very little developed and could not meet the needs of the country. The annual output of raw iron is 2,000,000 tons. The deposits of magnesium in Lublja have not yet been exploited, although the annual production was estimated in 1921 at 45,000 wagons. The sugar industry is well developed. The six sugar refineries of the territory obtained from Hungary could practically satisfy the country's needs. The chief imports have been textiles, agricultural produce, chemicals, leather, metals, and machinery; and the chief exports, corn, wheat, oats, cattle, fruit, and timber. Exports during the first six months of 1921 totaled, 1,160,051,982 dinars or about \$33,000,000 and the exports for the first six months of 1920 were only 272,004,068 dinars or about \$14,000,000. The figures for imports were not available but it was believed that they doubled the exports.

FINANCE. The budget of 1922 amounted to 6,000,000,000 dinars (dinar at par equals about

20 cents. The paper in circulation in the autumn of 1921 amounted to about 4,500,000 dinars. The dinar which was worth about \$.027 at the beginning of July fell to a minimum of about \$.011 early in November and has since risen to about \$.016 in December. The issue of paper money which was taking place rapidly during the summer and early fall was temporarily checked but a permanent balancing of the budget depended on further legislation. The government expressed a firm determination to reduce expenditures and increase taxation. An internal loan of 500 million dinars was subscribed to the extent of about three-fifths to the general public and the remainder was to be taken by the local banks which underwrote it. Efforts were being made at the close of the year to place a foreign loan of five hundred million francs, especially for repair and construction of railroads.

RAILWAYS. Railway mileage in 1920 was 5684 of state line with the exception of 509 miles privately owned. It was reported during the year that the kingdom of the Serbs, Croats, and Slovenes was to receive from Germany on account of reparation 50 locomotives and 2500 freight cars. During the year it was announced that the ministry of communications of the Kingdom of the Serbs, Croats, and Slovenes had called for bids for the construction of five short railway lines to link up existing roads in Jugo-Slavia, for which purpose an internal loan of 500,000,000 dinars (roughly, \$2,000,000) had been floated. Three of these projects were for narrow-gauge lines and two for standard gauge. The total length of line was 94 miles.

GOVERNMENT. A constituent assembly was elected on Nov. 28, 1920, composed as follows in respect to political parties: Radicals, 102; Democrats, 94; Communists, 42; Croatian-Agrarians, 51; Serb-Agrarians, 33; Mohammedans, 25; Catholic People's party, 21. This body was the sole source of authority at the beginning of 1921. The ministry appointed Feb. 15, 1921, was as follows: Prime Minister, M. Stoyan Protitch; Vice-President of the Council and Minister of Communications, M. Koroshetz; Interior, M. Trifkovitch; Foreign Affairs, M. Trumbitch; Commerce, M. Stoyan Ribaratz; Finance, M. Velisar Yankovitch; Forests and Mines, M. Kovatchevitch; Agrarian Reform, M. Krsnitch; Food, M. Stanichitch; Public Health, M. Slavko Miletitch; Social Affairs, M. Jouro Chotusmine; Public Instruction, M. Trifunovitch; Religion, M. Jankovitch; War, (vacant); Public Works, M. Jovan Jovanovitch; Agriculture, M. Frano Rochkar; Justice, M. Nintchitch; Posts and Telegraphs, M. Drinkovitch; without Portfolio, M. Spaleciovitch.

HISTORY

FOREIGN RELATIONS. In January the government complained to the Allied Powers in a series of notes that Bulgaria was not observing the treaty of Neuilly in respect to reparations and disarmament. On June 8 a treaty was signed with Roumania for the purpose of insuring the maintenance of the treaties of Trianon and Neuilly on the part of the Hungarian and Bulgarian governments, respectively. There was much dissatisfaction in Jugo-Slavia with the decision of the Council of Ambassadors on the dispute over the Albanian frontier (see ALBANIA). The Jugo-Slavs disclaimed

any imperialistic aims in respect to Albania but desired a strong frontier in order to secure them against invasions and disorders. They hoped that the Allied Powers would reconsider the decision. Jugo-Slavia was in constant alarm over the designs of her neighbors. In addition to the hostility of the Hungarians and the doubtful attitude of Bulgaria, there was trouble with Albania, friction with the Italians, and a certain lack of cordiality with the Greek government of Constantine. To offset this there was the Little Entente, concluded with Roumania and Czecho-Slovakia, which was designed to insure the safety of the countries liberated by the Allies in central Europe and the Balkans. When the treaty of Rapallo was ratified it was expected at Belgrade that friendly relations would be restored with Rome. This did not result and there was much ill-feeling in Jugo-Slavia toward Italy. According to the Jugo-Slavs the policy at Rome had been to stir up strife in the kingdom of the Serbs, Croats, and Slovenes, by every means in its power. Italy had not yet evacuated the third zone of Dalmatia and had placed all the difficulties possible in the way of Jugo-Slavia for the opening of the port of Baros. Italy moreover had favored the Hungarian government in the question of the treaty of Trianon which the Jugo-Slav government had supported. The Italians, according to the Jugo-Slavs, were intriguing behind the Albanian government of Tirana. The Jugo-Slavs also complained that under the pretext of the dread of an epidemic the Italian government had forbidden the entry within the Italian borders of the chief article of Jugo-Slav export, namely, cattle. As to the relations between Jugo-Slavia and Bulgaria they were simply the result of the war. Serbia held the view that the damage done by the occupation must be repaired and all parties in Serbia were agreed in this demand. However, there were certain differences among them in respect to the application of this policy: While some of them endeavored to prevent the restoration of relations of confidence, others looked forward to the possibility of an understanding on the basis of their common interests. The situation was uncertain owing to the difficulty of settling on a plan that was at once acceptable to Belgrade and Zagreb (Agram), and the problem of an understanding with Bulgaria became an internal question in Jugo-Slavia owing to the disagreement between the Serbs and the Croats. Serbia and Greece at the close of the year had officially renewed their relations as allies but in the former country there was still a deep distrust of the Greeks on account of the alleged treason of Constantine during the war and whenever there seemed a prospect of Greek failure in Asia Minor the Belgrade press expressed its satisfaction. The basis of ill-feeling between the two countries, however, was rather economic than political or sentimental. Shup up within their peninsula without access to the coast the Jugo-Slavs and especially the Serbs resented their inability to control a port on a free sea, and a considerable part of the public were insisting for an outlet on the Aegean as a vital necessity for the national interest. Finally there was the great problem of Russia, and at Belgrade it was felt that if a democratic Russia or indeed a Russia under any form of government, had been able to take its seat in the conferences of the Allies, it would have prevented many of the problems affecting the Slav populations from being settled,

as they had been, against the interests of the Slavs. As regards Jugo-Slavia especially, the Powers had pronounced against her, for example, in the questions of Fiume, of Albania, and of Baranya (see HUNGARY) and the point was all the more striking in that in all these, when it was a matter of adverse decisions the Jugo-Slavs had occasioned no difficulty in the way of execution. There had been no D'Annunzio or Zeligowski to take part in a Jugo-Slav adventure, and the wisdom of the Jugo-Slav prime minister, M. Pachitch, and the common sense of the people had prevailed.

THE RACE QUESTION. The leadership of Serbia in the new Jugo-Slav state involved racial and political dissension. It had been opposed by various groups in the Serbian kingdom, itself, namely, many of the Social Democrats, the Moderate Republicans, and the Anti-Monarchists. Outside Serbia it was resented by many of the Croats who in the old Austro-Hungarian Monarchy had enjoyed a certain degree of constitutional liberty and who cherished their own national culture. They desired a free confederation, and at first nothing more than that was aimed at by the Croats, Slovenes, and Serbs who in the declaration of Korfu in 1917 merely asserted the political unity of the three races. The national ambition of Serbia gave deep offense to the other nationalities. The Montenegrins who number about 250,000 had lost their national unity and independence, but the chief opposition in 1921 came from the stronger racial element, the Croats; and Croatia was practically united against the apparent attempt of the government to absorb their people as Serbs. Great resentment followed the declaration of the prime minister, Nicholas Pachitch, that all the southern Slavs were Serbs. The ministries of both Vesnitch and Pachitch pursued a programme of nationalization, and to this end looked to a division of the kingdom into forty-eight regions, irrespective of racial lines. Moreover, the legislation of the country was entirely under the control of Serbia, and the Serbian language was employed to the exclusion of others. When the government was embarrassed by the opposition to this policy, it found a working majority only by making concessions to the Moslems of Bosnia. The voting of the constitution by so large a majority (223 to 35), June 28, 1921, gave a general impression that the country was united, but the peasant party of the Croats who made up one of the chief elements in the Croat community refused to attend the constituent assembly, and even the Croat clericals withdrew from that body. The above account is taken from the report of a French writer who made a special study of the racial conditions in the new state. In regard to the dissensions while the constitution was under consideration he said: "The improvised parliament of 1918 required two years to pass any laws for holding elections to the constitutional convention. The lack of a working majority was not due as is often alleged to plots in Italy, Hungary, or Bulgaria nor to Socialist schemes at home, but to the really profound chasm between Serbian aspirations and the resistance to subjugation on the part of Croats and Slovenes. The former Serbian Premier, M. Protitch, made the first draft for the constitution on Belgian lines, retaining the existing administrative divisions, and granting them a certain autonomy."

MONTENEGRO. The movement for self-government in Montenegro continued during the year,

and in the latter part of December preparation was made for representation before the governments of France, Italy, and Great Britain on behalf of the Montenegrin people, and their right to determine their own destiny.

ACCESSION OF ALEXANDER. Alexander was proclaimed King of Jugo-Slavia, August 17, and in accordance with the constitution should have taken his oath within ten days following the death of his father, King Peter, but he was delayed in Paris. He had been in Paris since early in July and at the time of King Peter's death in August, was reported to be seriously ill. An attempt had been made on his life shortly before he went to Paris and his illness concerning which there were various rumors, was believed by many to have been caused by a wound inflicted by the would-be assassin. He left Paris for Belgrade, October 29, and took his oath before parliament and ascended the throne, November 6.

NEW MINISTRY. The Pachitch ministry lacking support offered its resignation late in November but was requested by the king to remain in power provisionally and to attempt to reconstitute the cabinet. The prime minister was not successful in doing this and M. Davidovich was called to the premiership but he too failed to form a ministry. M. Pachitch at the king's request assumed the premiership and after a crisis of twenty days succeeded in forming a new ministry based on the support of Socialists, Radicals, Moslems, and Slovene peasants.

OTHER EVENTS. The constituent assembly began the debate of the new constitution, March 16. A new law of emigration was passed May 21 which contained some peculiar features, restricting the method of transit. The paragraph provided that no emigrant should leave Jugo-Slav territory without a passport which was valid only for a passage from a Jugo-Slav port to a port in the country of destination; and his return passport was in like manner valid only for passage from a port of the country that he left to a Jugo-Slav port. The emigrant was thus forbidden to cross a foreign country. Another paragraph provided that steamer tickets could be delivered only for those Transatlantic vessels that took and received passengers at Jugo-Slav ports and the tickets were only valid for embarking and debarking at Jugo-Slav ports.

JUILLARD FOUNDATION. See Music, *General News*.

JUVENILE COURTS. At the beginning of 1921 all but two States of the Union had laws providing for juvenile or children's courts, the exceptions being Maine and Wyoming. In 1920 a particular study was made, under the direction of the United States Children's Bureau of the principles and methods of the probation system of the several States. The results were published in 1921 and some of the chief points are summarized in the following paragraphs:

PROBATION METHODS. All of the States, with the single exception of Wyoming, had laws on their statute books providing for the appointment of probation officers to deal with children in the courts, and although children's courts in some of the States had been established in only one or two of the largest cities, the system in the majority of States was designed to reach every child within the State's limits. In the few preceding years development had been rapid, especially in certain

of the southern States. Mississippi, West Virginia, and New Mexico provided, within the five preceding years, for juvenile courts and probation for the first time, and Georgia and North Carolina extended their systems to the entire State. In North Carolina, by the law of 1919, a separate juvenile court, a judge, and a paid probation officer were provided in every county.

The function of the probation officer in most of the children's courts is of a double nature. In the first place he investigates the case with a view to ascertaining the peculiar social circumstances of the child, and in the second place he supervises the case after it is carried into court. It frequently happens that the probation officer decides through investigation whether the case is sufficiently serious to come before the court, and it is often within his power, when a petition is filed, to determine whether the child should be taken to a place of detention or remain in its home pending investigation. The best systems provide for a thorough social investigation by the probation staff in the first instance, and while some of the children's courts still continue to bring the child to trial before making the investigation and to decide the question of its guilt or innocence before receiving the probation officer's report, the more advanced practice reverses the process and expert opinion is opposed to this method; for the principle at the basis of the juvenile court is parental and it should aim to ascertain the underlying facts of the case, its true purpose being not to punish but to remove the cause of the child's unsocial conduct and take measures for its protection and the protection of society. Investigation by probation officers often brings to light social conditions that account completely for the action of the offender, as for example, bad housing, immoral neighborhood, quarrels in the family, lack of discipline, etc. Another coöperative agency which has been established more recently than the probation staff, is a court clinic wherein examinations are made by medical and psychological experts. Owing to the extraordinary advance in the study of psychology during the last ten years, the work of these clinics has become indispensable. It has been established that while not a very large per cent of the children brought before the juvenile courts are defective in a serious sense, many of them are distinctly abnormal, and these are generally the ones who occasion the greatest difficulties. Probation officers are, with a few exceptions, publicly employed and paid and the societies which formerly selected the workers and supplied them to the courts have for the most part ceased to do so, dependence upon volunteer initiative having proved almost a complete failure. The salaries at present are not high, but a movement to increase them has already brought results. In 1921 the sum of \$1500 to \$2000 was frequently paid at the start and increases were made at regular intervals. In a large number of the States the salaries of probation officers were fixed by law, but there was complaint against so doing on the ground of inelasticity. Other States fixed the salaries through the local boards having charge of appropriations. The objection to this has been that it results in the lack of uniformity and often in a mistaken economy. It

has been recommended that the judge should be empowered within certain limits to fix salaries and determine the number of probation officers required.

As to the systems in specific States, that employed in New York has been cited as one of the most successful. It applies to the entire State, and the methods used have been of a nature to bring out good material and prevent unfit appointments. Probation officers are appointed under the civil service system, but the dangers and inefficiency of that system have been offset by the coöperation of the State Probation Commission with the Civil Service Commission in the holding of examinations. In the States of Vermont, Rhode Island, and Utah, the State government retains complete control over the appointment of probation officers, the latter holding their authority from the State board of charities in Vermont and Rhode Island and from the State juvenile court commission in Utah. In North Carolina the chief probation officer of the court is a county superintendent of public welfare for each county. In Texas probation officers in juvenile courts must be appointed by the judges from lists furnished by a committee consisting of the county superintendent of public instruction and two school principals of the district. In Massachusetts, the State Commission of Probation conducts unofficial examinations for probation officers and from the lists of eligible candidates the judges make their selection.

In respect to State supervision over probation and court work, the study above mentioned presents the following conditions: "Effective State supervision of probation and court work generally has not advanced far in this country. In addition to the two States—Massachusetts and New York—having independent probation commissions, three States—Rhode Island, Vermont, and Utah—have State control of the appointment and work of probation officers. In 1919 Alabama established a child-welfare department having among its duties advising with and receiving reports from probation officers and judges of all juvenile courts. The same year Oregon established a State child-welfare commission, one of whose duties is to approve all appointments of probation officers in the Portland Court of Domestic Relations, which has exclusive jurisdiction of children's cases. Connecticut supervises probation work through its prison association, a semi-official body. In addition, nine States require probation officers to report to some State department, usually a State board of charities and corrections."

LEGISLATION. In 1921 Connecticut passed an act relating to probation. In Indiana provision was made for the appointment of a probation officer and an advisory juvenile commission, and the powers and duties were prescribed. South Dakota amended the code in respect to dependent, neglected, or delinquent children, providing for a woman probation officer in case of delinquent girls and for the appointment of a probation officer in any county with a population of 15,000, excluding from the trial and from perusal of the records, and providing that a court decision in a case should not be considered a conviction, or disqualify for public office or stamp the child as a criminal.

K

Kaiser Wilhelmsland. A former German colony situated in the northern part of southeastern New Guinea; lying between 2° 30' and 8° S. latitude and 141° and 148° E. longitude. It was declared a German protectorate in 1884. Area, including the adjacent islands, about 70,000 square miles. It contains high mountain ranges running parallel with the coast plain, which has a width of from 60 to 100 miles, and some of the mountain summits exceed 12,000 feet in height. The interior has been little explored. Population estimates vary from 110,000 to 530,000 and the European population in 1914 was placed at 300, chiefly German. It was under the control of the New Guinea company from 1885 to 1909. At the outbreak of the war it was occupied by the Australian forces and from that time was under Australian administration. See GERMAN NEW GUINEA.

Kalamazoo, MICH. See MUNICIPAL GOVERNMENT.

Kalbeck, Max. German musicologist, died in Vienna, May 4. He was born in Breslau, Jan. 4, 1850, where he began his career as a musical critic. From 1880 he lived in Vienna. His most important work is the great biography of Brahms (8 vols.). He also edited Brahms's correspondence with E. von Herzogenberg. Besides several meritorious libretti (for J. Stauss, Henschel, Poldini, von Fielditz, etc.), he made excellent German translations of many contemporary operas.

Kamerun, CAMEROON or CAMEROONS. Formerly a German protectorate; situated in west central Africa between Nigeria (British) and the French Congo (French Equatorial Africa) and extending north to Lake Chad and east to the Ubangi river. In 1911 a large tract was transferred to it from the French Congo with an estimated area of 107,270 square miles and was known as New Kamerun. During the war (1916) French and British troops overran the territory and it was divided between France and England. The greater part was placed under French administration, the British portion being a strip with an area of about 30,000 square miles which extends from the sea along the Nigerian frontier to Lake Chad. The total area exclusive of the part ceded to Germany in 1911 is estimated at 191,130 square miles and the population at about 2,540,000. Bantu tribes predominate near the coast and Sudan negroes in the interior. The whites in 1913 numbered 1871. The chief town is Duala with a population of about 22,000. Other towns are Buea which was formerly the seat of government; Victoria, Campo, Cribi, and Rio del Rey. The area of the French portion in 1920 was placed at 166,489 square miles. The budget of French Kamerun for 1920 balanced at 7,370,500 francs. The chief products are coffee, palm oil, tobacco, and ivory. The railway mileage was 359. In the British portion the imports in 1919 were £67,000; exports, £235,000. The principal exports were

palm kernels and palm oil, rubber, ivory, and cocoa, and the principal imports, textiles, timber, salt, spirits, iron ware, and colonial products. The railway mileage in 1913 was 149. The French portion is under a commissioner—M. Garde at the beginning of 1921. The British portion is under the governor of Nigeria.

KANE, JAMES JOHNSON. See NECROLOGY.

KANSAS. POPULATION. According to the report of the census of 1920, there were 1,769,257 residents in the State, Jan. 1, 1920, as compared with 1,690,949 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	4,601,000	102,142,000	\$31,664,000
	1920	5,007,000	132,686,000	58,382,000
Oats.....	1921	1,894,000	38,827,000	10,483,000
	1920	2,127,000	65,299,000	25,467,000
Wheat.....	1921	10,554,000	128,695,000	119,687,000
	1920	9,294,000	143,073,000	186,002,000
Rye.....	1921	91,000	1,138,000	774,000
	1920	112,000	1,456,000	1,456,000
Barley.....	1921	660,000	13,200,000	3,828,000
	1920	767,000	19,482,000	8,767,000
Hay.....	1921	2,484,000	3,810,000	27,940,000
	1920	2,765,000	4,624,000	46,968,000
Potatoes.....	1921	65,000	4,160,000	5,816,000
	1920	60,000	5,100,000	7,650,000
Sor. syrup.....	1921	5,000	405,000	373,000
	1920	5,000	430,000	538,000

¹ Tons.

² Gallons.

IRRIGATION. The United States Bureau of the Census issued during the year the following summary of irrigation conditions in 1920 with the corresponding figures for 1910 for purposes of comparison. (See table on page 402.)

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Abolishing the Industrial Welfare Commission and conferring its powers upon the Court of Industrial Relations, the office of Commissioner of Labor Industry being abolished; creating a State aircraft board; forbidding banks to engage in trade or commerce and providing that any bank may become a member of the Federal Reserve system and also providing that a bank may invest, under certain restrictions, in the stock of one or more banks or corporations; provision for the examination of building and loan associations by the Bank Commissioner; provision for the establishment and maintenance of city planning commissions in cities of the first class having a population of more than 20,000; provisions and regulations in respect to milk, cream, and dairy products and the manufacture and transportation of ice cream; imposition of a penalty for failure or neglect in respect to the exclusive use of the English language in teaching in all elementary schools; prohibition of the transport of explosives through cities and towns; provision in respect to inspec-

Item	Census of—		Increase ¹	
	1920	1910	Amount	Per cent
Number of all farms.....	165,286	177,841	—12,555	—7.1
Approximate land area of the state.....	acres. 52,335,360	52,335,360		
All land in farms.....	acres. 45,426,179	43,384,799	2,040,380	4.7
Improved land in farms.....	acres. 30,600,760	29,904,067	696,693	2.3
Number of farms irrigated.....	504	1,006	—502	—49.9
Area irrigated.....	acres. 47,312	37,479	9,833	26.2
Area enterprises were capable of irrigating.....	acres. 67,853	139,995	—72,142	—51.5
Area included in enterprises.....	acres. 102,562	161,300	—58,738	—36.4
Per cent irrigated:				
Number of all farms.....	0.3	0.6	—0.3	.....
Approximate land area of state.....	0.1	0.1		.....
Land in farms.....	0.1	0.1		.....
Improved land in farms.....	0.2	0.1	0.1	.....
Excess of area enterprises were capable of irrigating over area irrigated.....	acres. 20,541	102,516	—81,975	—80.0
Excess of area included in enterprises over area irrigated.....	acres. 55,250	123,821	—68,571	—55.4
Capital invested.....	\$2,067,381	\$1,365,663	\$701,818	51.4
Average per acre enterprises were capable of irrigating.....	\$30.47	\$9.75	\$20.72	212.5
Estimated final cost of existing enterprises.....	\$2,195,981	\$1,365,563	\$830,418	60.8
Average per acre included in enterprises.....	\$21.41	\$8.47	\$12.94	152.8
Average cost of operation and maintenance of irrigation works per acre.....	\$3.29	\$1.59	\$1.70	106.9

¹ A minus sign (—) denotes decrease.

tion, sampling, storing, weighing, and grading of grain; provision for the organization, regulation, and taxation of incorporated mutual insurance companies other than life, and imposition of a penalty for violation of the law; regulations of public live stock yards and their operations; promotion of intelligent marketing of agricultural products through cooperation (see Co-operation); provision for the registration of motor vehicles; regulations for the granting of pardons, parole, and commutations; creation of a Public Utilities Commission upon which was conferred all power and duties of the Court of Industrial Relations relating to public utilities; provision for the organization of rural high school districts and for the consolidation of school districts for educational purposes; provision for reference to the people at the General Election in 1922 of the question of compensation for veterans of the World War, the proposal being that bonds be issued not to exceed \$25,000,000 to compensate honorably discharged veterans at the rate of \$1.00 a day for each day's service, such bonds to bear interest of not more than five and a half per cent; provision against water pollution with penalties for violation; authorization of cities of the first class, over 20,000 population, to establish districts or zones regulating and restricting the location of trades and industries and making regulations in respect to the buildings, providing also for City Planning Commissions and authorizing cities to declare violation of the act a misdemeanor.

OFFICERS. Governor, Henry J. Allen; Lieutenant-Governor, Charles S. Huffman; Secretary of State, L. J. Pettijohn; Treasurer, Walter L. Payne; Auditor, Fred W. Knopp; Attorney-General, Richard J. Hopkins; Superintendent of Public Instruction, Miss L. E. Wooster; Superintendent of Insurance, Frank L. Travis.

JUDICIARY. Supreme Court: Chief Justice, William A. Johnston; Justices, Rousseau A. Burch; Henry F. Mason, Silas W. Porter, Judson S. West, John Marshall, John S. Dawson.

KANSAS, UNIVERSITY OF. A co-educational State institution of the higher education at Lawrence, Kansas; founded in 1864. The enrollment for the fall session of 1921 was 3649 of whom 2220 were in the College of Liberal Arts and Sciences; 646 in the Engineering School; 291 in Fine Arts;

169 in Law; 109 in the Graduate School; and the rest distributed among the Schools of Pharmacy, Medicine, Nurses, and Education. The enrollment for the summer session was 1309 and the faculty numbered 303. The number of volumes in the library was 140,110. President, Dr. Ernest H. Lindley.

KANSAS WESLEYAN UNIVERSITY. An institution of the higher learning at Salina, Kansas, founded in 1885. The total enrollment in 1921 was 883 and the faculty numbered 33. The library contained 12,500 volumes. During the year the new physical laboratory was equipped. President, L. B. Bowers, D.D.

KARAFUTO. The Japanese part of the island of Sakhalin comprising all of the island that lies south of the 50th parallel of north latitude. Area 13,048 square miles; population, estimated in 1920 at 105,765. See SAKHALIN.

KENDALL, CALVIN NOTES. Commissioner of education, died September 2. He was born at Augusta, N. Y., Feb. 9, 1858; graduated at Hamilton College in 1882 and taught school in the West. He became superintendent of schools at Jackson, Mich., in 1886 and later at Saginaw and then after engaging in business for three years was appointed successively superintendent of schools at New Haven, Conn., and Indianapolis, Ind. He was commissioner of education of the State of New Jersey after July, 1911. He lectured extensively at the summer schools of the universities and was prominent in the leading educational associations. He edited works on methods of education in collaboration with others.

KENNEDY, Sir JOHN. Canadian railway builder, died at Montreal, Can., October 25. He was born, Sept. 2, 1838; studied at McGill University; and became chief engineer of the Great Western Railway of Canada. He was afterwards harbor commissioner of Montreal, and a member of various canal and other important commissions.

KENTUCKY. POPULATION. According to the report of the census of 1920, there were 2,416,630 residents in the State, Jan. 1, 1920, as compared with 2,289,905 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	3,209,000	82,150,000	\$45,182,000
	1920	3,384,000	101,687,000	83,383,000
Oats.....	1921	293,000	5,567,000	2,672,000
	1920	280,000	6,580,000	4,803,000
Wheat.....	1921	634,000	6,340,000	7,291,000
	1920	588,000	5,998,000	11,456,000
Clover seed....	1921	18,000	34,000	340,000
	1920	25,000	52,000	780,000
Tobacco.....	1921	385,000	1,325,710,000	50,485,000
	1920	560,000	1,476,000,000	71,400,000
Hay.....	1921	1,077,000	1,127,000	17,376,000
	1920	1,174,000	1,284,000	28,087,000
Potatoes.....	1921	58,000	3,770,000	8,220,000
	1920	57,000	5,643,000	8,464,000
Swt. potatoes..	1921	18,000	1,872,000	2,153,000
	1920	18,000	1,890,000	2,835,000
Sor. syrup.....	1921	48,000	4,080,000	2,938,000
	1920	51,000	4,845,000	5,184,000

¹ Pounds.¹ Tons.

DRAINAGE. The following table published by the United States Census Bureau in 1921 summarizes the drainage conditions of the State in 1920:

Item	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	270,626	100.0
Farms reporting land having drainage.....	5,817	2.1
Farms reporting land needing drainage.....	19,592	7.2
All land in farms.....	acres.. 21,612,772	100.0
Improved land in farms.....	acres.. 13,975,746	64.7
Farm land reported as provided with drainage.....	acres.. 225,228	1.0
Farm land reported as needing drainage.....	acres.. 573,299	2.7
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres.. 25,715,840	100.0
All land in operating drainage enterprises.....	acres.. 358,480	1.4
Improved land.....	acres.. 245,334	1.0
Timber and cut-over land.....	acres.. 92,495	0.4
Other unimproved land.....	acres.. 20,651	0.1
Total capital invested in and required for completion of operating enterprises.....	\$1,820,996	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	\$1,521,725	83.6
Additional capital required to complete these enterprises.....	\$299,271	16.4

The total works completed by drainage enterprises to Dec. 31, 1919, comprised 664.5 miles of open ditches, 86.2 miles of tile drains, and 0.2 mile of accessory levees; the additional lengths

JUDICIARY. Court of Appeals: Justices Rollin Hurt, Gus Thomas, Ernest Clarke, F. D. Sampson, W. E. Settle, Huston Quin, William Rogers Clay.

	1919	1914	Per cent of increase, 1914-19 ¹
Number of establishments.....	3,957	4,184	-5.4
Persons engaged in manufactures.....	83,958	77,865	7.8
Proprietors and firm members.....	4,003	4,148	-3.5
Salaried employees.....	10,610	9,131	16.2
Wage earners (average number).....	69,345	64,586	7.4
Primary horsepower.....	247,073	238,314	3.7
Capital.....	\$276,535,000	\$193,423,000	43.0
Services.....	86,612,000	43,163,000	100.7
Salaries.....	19,612,000	11,323,000	73.8
Wages.....	66,934,000	31,830,000	110.3
Materials.....	235,716,000	114,829,000	105.3
Value of products.....	395,660,000	230,249,000	71.8
Value added by manufacture (value of products less cost of materials).....	159,944,000	115,420,000	38.6

¹ A minus sign (—) denotes decrease.

under construction were 77.0 miles of open ditches and 1.0 mile of tile drains. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the enterprises, nor the works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. There were no pumping districts for land drainage in Kentucky. Corn was the principal crop raised on land drained in drainage enterprises.

KENTUCKY, UNIVERSITY OF. A co-educational State institution at Lexington, Ky.; founded in 1858. The enrollment for the fall session of 1921 was 1458 of whom 761 were in Arts and Sciences; 359 in Engineering; 242 in Agriculture; and 67 in law. The enrollment for the summer session was 491. The income was \$1,256,000. The library contained 42,921 volumes. During the year a men's dormitory was built, courses were established in public health and hygiene, the Art de-

partment was enlarged and there were notable additions to the live stock of the experiment station. President, [Frank LeRond McVey, Ph.D., LL.D.

KENYA COLONY. See EAST AFRICA PROTECTORATE.

KENYON COLLEGE. A Protestant Episcopal institution of the higher learning at Gambier, Ohio; founded in 1825. In the fall session the enrollment was 233, and the faculty numbered 16. The income was about \$50,000. The library contained 28,000 volumes. During the year a \$600,000 endowment fund was raised. President, W. F. Peirce, D.D.

KERWIN, JAMES CHARLES. See NECROLOGY.

KETCHAM, WILLIAM ALEXANDER. Lawyer, died at Indianapolis, Ind., December 27. At the time of his death he was commander-in-chief of the Grand Army of the Republic. He was born in Indianapolis, Ind., Jan. 2, 1846; and prepared for college in Germany; studied at Wabash College, Ind.; and graduated at Dartmouth College. He enlisted in the Union army as a private in 1864. In 1868 he was admitted to the Indiana bar, and practiced afterwards at Indianapolis. He was attorney-general of Indiana for two terms, 1894-98; and president of the Indiana Bar Association, 1891; and of the Indiana State Bar Association, 1910-11. In politics he was a Republican.

KIAOCHOW. A town, harbor, and district on the east coast of the Chinese province of Shantung, taken by Germany in November, 1897, and acquired in the following year from the Chinese government by a 99-year lease and declared a German protectorate; captured by the Japanese in 1914, and administered by her under a mandate in accordance with the Treaty of Versailles, which, however, was not signed by China. Area, exclusive of the bay, about 200 square miles; population, about 227,000, but including the neutral zone surrounding the bay with an area of about 2500 square miles, the population would be 1,427,000. The chief city and port is Tsingtao. The Japanese residents, exclusive of the military numbered, August 30, 1920, 28,336. In 1919 the imports were 69,557,059 Mexican dollars; and the exports, 69,131,550 dollars. The chief imports were: Cotton goods, metal, cigarettes, petroleum, lumber, and dyes; and the chief exports were: Bean oil, peanuts, wheat, tobacco leaves, etc. The tonnage of steamships, entered and cleared in 1919, was 1,938,895 of which 1,573,634 were Japanese.

KIENER, LEON. Former member of the Alsace-Lorraine legislature died in December. He was born in 1870. He was largely known for his speech at the session of the Alsace-Lorraine Landtag, March 3, 1913, in which he attacked the German government with extreme bitterness saying that the German ministry in the administration of justice merely performed the functions of an executioner.

KIERNAN, WILLIAM. Rector of St. Patrick's Church, Philadelphia, died at Philadelphia, Pa., December 21. He was born at Armagh, Ireland, in 1867, came to this country in childhood and studied at the Theological Seminary at Philadelphia. He studied afterwards at the American College at Rome, where he was ordained in 1869. In 1875 after he had held a pastorate in Philadelphia he was made professor in the Theological Seminary and in 1882 became its rector. On Aug. 15, 1915, he was appointed rector of St. Patrick's Church.

KILBOURNE, JAMES. American manufacturer, died in 1921. He was born at Columbus, Ohio, Oct. 9, 1842, graduated at Kenyon College in 1862 and served in the Civil War in which he was captain of an Ohio regiment and engaged on staff duty under Gen. J. M. Tuttle and Gen. John McArthur. After the war he was admitted to the bar at Columbus, Ohio, and practiced law for a time. He founded and became president of the Kilbourne and Jacobs Manufacturing company and was director and officer in railways and banks and various important philanthropic and social institutions of the State.

KINDIEBERGER, DAVID. Medical officer of the navy, died in New York City, March 25. In 1914 he was in command of the naval hospital at Guam. He was born at Smithville, Ohio, Sept. 2, 1834; graduated at Wittenberg College, Ohio, in 1857; and entered the naval service in 1859. He rose through the successive grades to medical director. He served during the Civil War, taking part in all the battles of Admiral Farragut's squadron, except Vicksburg. He was subsequently fleet surgeon of the Asiatic squadron and of the Southern Pacific squadron; and in 1892-96 was in command of the United States naval hospital at Philadelphia.

KING, OSCAR A. See NECROLOGY.

KING, WILLIAM FLETCHER. See NECROLOGY.

KIRKMAN, MARSHALL MONROE. Author, died at Chicago, Ill., April 18. He was born in central Illinois, July 10, 1842; and was in the service of the Chicago and Northwestern railway for fifty-three years, 1856-1910, being vice-president of the road after 1889. He wrote largely on railway subjects and published in 1909 the *Science of Railways* in seventeen volumes. He also wrote: *Romance of Gilbert Holmes* (1900); *Primitive Carriers*, and *History of Alexander the Great* (1913); *Romances of the Camp and Court of Alexander the Great*.

KLINK, FRIEDA. See MUSIC, Artists, Vocalists.

KNAPP, PHILIP COOMBS. American neurologist, died in 1921. He was born at Lynn, Mass., June 31, 1858; graduated at Harvard in 1878 and became a specialist in nervous and mental diseases at Boston in 1884. He was an instructor at the Harvard Medical School in diseases of the nervous system from 1888 to 1913, and was an officer in many important institutions pertaining to his specialty, including the American Neurological Association, of which he was president in 1895. He wrote: *The Pathological Diagnosis and Treatment of Intra-cranial Growths*; and collaborated with others in the preparation of several important medical texts.

KNOX, PHILANDER CHASE. United States Senator from Pennsylvania, died at Washington, October 12. His death which resulted from a stroke of apoplexy, occurred unexpectedly, his health apparently having been good down to that very day. He was born at Brownsville, Pa., May 6, 1853, the son of a country banker, and graduated at Union College, Ohio, in 1892. Admitted to the bar in 1875, he soon built up an excellent practice, his firm of Knox and Reed being known as the most prosperous in Allegheny County. H. C. Frick who was a friend of his boyhood secured his appointment as attorney for the Carnegie Steel company. In 1901 he was appointed Attorney-General of the United States by President McKinley and held the office under

President Roosevelt until 1904, when he resigned to become United States Senator as successor to the late Senator Quay. His administration of the Department of Justice was notable for its prosecutions of trusts under the Sherman Act and its measures to prevent rebates on the part of the railroads. The outstanding case was that of the Northern Securities company which had been organized to take over the two competing lines, the Northern Pacific and Great Northern. The government won its case against this merger and to prevent the usual delays incident to the appeal to higher courts, the Attorney-General secured the passage of an Act of Congress allowing only sixty days in which to appeal to the United States Supreme Court and providing for the prompt decision of those cases which were of especial public interest. He argued the case personally before the Supreme Court and the decision in favor of the government was handed down March 14, 1904. Credit is given him by his biographers for the more effective laws in regard to the regulation of trusts and railways, the principles of this legislation being laid down by him in a letter addressed to the judiciary committees of the House and Senate, Jan. 3, 1903. On the recommendations of this same letter also was based the Department of Commerce and Labor and its Bureau of Corporations which were subsequently created. Other features of his warfare against monopoly were his fight against the seven beef corporations on the charge of conspiracy in restraint of trade begun in 1902, and his successful proceedings against fourteen railroad corporations. The purchase of the Panama Canal for forty million dollars was greatly aided by his work in establishing the legality of the purchase. After serving as Senator he was appointed Secretary of State in President Taft's cabinet. The State Department under his administration pursued the policy in promoting American trade, which was characterized as "Dollar Diplomacy." Arbitration treaties with France and Great Britain were another feature of his administration. He was prominent in the debate on the Treaty during the last two years and was the author of the celebrated "Knox Resolutions," which were so long before the public in 1920 and which were described in the preceding YEAR BOOK.

KNOX, VESSEY. British lawyer and politician, died in County Down, Ireland, May 15. He was born in 1865, educated at Oxford and called to the bar at the age of twenty-four. In 1890 he was elected to Parliament as a Nationalist and was reelected until 1899 when he retired.

KOCHANSKY, PAUL. See MUSIC, *Artists, Instrumentalists.*

KOGEL, GUSTAV FRIEDRICH. Musical conductor, died at Frankfort-on-Main, November 14. He was born at Leipzig, Germany, in 1849 and received his musical education at first from his father and afterwards at the Leipzig Conservatory. He settled in Alsace as a teacher of music but returned to his native town at the end of the Franco-German war and joined a publishing house for which he edited many operatic scores. He began his work as a musical conductor in 1874 at Nuremberg but was soon called to other cities, and from 1887 to 1891 conducted the Philharmonic Orchestra at Berlin. In the latter year he began the direction of the museum con-

certs at Frankfort which he carried on with great success. He made several successful foreign tours and in 1906 accompanied the Philharmonic Society in New York.

KONDO, BARON R. See NECROLOGY.

KOREA or **CHOSEN.** A country in eastern Asia dependent on Japan after 1906, and formally annexed by Japan by a treaty between Japan and Korea on August 22, 1910. Capital, Seoul. Area, 84,103 square miles; population in 1920, 17,284,207. Seoul and its surrounding districts had a population of 302,686, of whom 50,291 were Japanese. The city of Ping-Yang had a population of 173,273. Of late years Japanese immigration has increased, and the number of Japanese at the end of 1919 was given at 336,872. The interests are mainly agricultural, and the chief crops are: Rice, wheat, beans and other grains, tobacco, and cotton. The rice crop in 1919 was 62,561,761 bushels. Gold mining is pursued with recent prospects of success, and an anthracite coal mine is worked in the north. Copper, iron, graphite, and mica are found in considerable quantities, but the mineral resources have not been developed owing to the lack of means of transport. The foreign trade (merchandise only) at the open ports in 1919 was as follows: Imports, 280,786,318 yen; exports, 219,665,781 yen; an increase of over 75 per cent in each case from the preceding year. The chief imports were: Cotton goods, machinery, kerosene, grass cloth, sugar, paper, coal, and timber; and the principal exports were: Rice, grains, vegetables, hides, and cattle. The larger part of the trade was with Japan. In 1920 the length of the railways was 1159 miles. The budget estimates for 1920-21 were: Revenue, 123,809,943; expenditure, 113,328,334. The Japanese governor-general at the beginning of the year was Baron Saito.

On February 18 a leading Korean, Bingen Shaku, was assassinated after expressing his approval of Japan's policy in Korea. The Korean programme of Japan was further criticised during the year and was even attacked by the opposition in the Diet of Japan itself. See JAPAN, paragraphs on *History*.

KORNGOLD, ERICH. See MUSIC, *Opera.*

KOROLENKO, VLADIMIR. Distinguished Russian novelist, died, December 25. He was born in Little Russia in 1853 of Cossack and Polish ancestry; and studied at the St. Petersburg Technological Institute and at the Moscow Academy of Agriculture. He was exiled for taking part in a student movement, and on his return earned a scanty living by working for a publisher. In 1879 he was exiled to Siberia where he spent six years, an experience that gave him material for many of his Siberian sketches. His chief literary writings began with *Makar's Dream* published in 1885. This was followed by *The Sakhalin Convict*; *In Bad Company*; *Memoirs of a Siberian Tourist*; and *The Murmuring Forest*. But the work on which his reputation mainly rested was his novel entitled *The Blind Musician* (1886), which is regarded as his highest achievement. His novel entitled *Prokhor and the Students* while running as a serial was stopped by the censor in 1887. After this his fiction consisted of short stories, many of which are on a high level and widely known. After 1900 his purely literary work decreased, and he was engaged for the most part in journalism or in the preparation

of volumes on public questions. One of his latest writings was an autobiographical work in two volumes (1911-12). His style of writing has often been compared to Turgenev's for its simplicity and clearness. His works have been translated into English, French, and German.

KOUDELKA, JOSEPH MARIA. Roman Catholic bishop, died at Superior, Wis., June 24. He was born in Bohemia, Dec. 8, 1852; and educated there in his youth, but came to the United States, in 1868 and studied at the St. Francis Seminary at Milwaukee, Wis. He was ordained priest in 1875, and held pastorates at Cleveland, Ohio, down to 1911. Meanwhile in 1908 he was consecrated bishop. In 1911 he was transferred to Milwaukee, and in 1913 became bishop of the Diocese of Superior, Wisconsin. He wrote readers for Bohemian schools and a short history of the church in German for Catholic schools. He also prepared prayer books for children and adults.

KRANBERG, JULIUS. Danish artist, died. October 18.

KROPOTKIN, PRINCE PETER ALEXEIVITCH. Russian social philosopher and agitator, died, toward the latter part of January. For many years he was known as the chief representative of philosophic anarchism. He was born Dec. 9, 1842, and educated for the army. He joined a Cossack regiment on the Amur where he made valuable geographical explorations. Having witnessed the suppression of a revolt of Polish exiles in Siberia, he abandoned his military career, returned to St. Petersburg in 1867, and, entering the university there, applied himself especially to the study of geography. He made an important contribution to the cartography of the Siberian mountains and in 1871 he received the offer of the secretaryship to the Russian Geographical Society. Declining this on account of his increased interest in the problem of poverty, he went to Zurich and entered into relations with the leaders of the International, familiarizing himself with what had been written on the movement. After that he returned to Russia and as a member of the Tchaikovsky Circle devoted himself to propaganda among the workmen. He was arrested and imprisoned in 1873, but in the following year succeeded in escaping through the aid of his friends and a few days later reached the border of Finland. Many years of exile followed. The first part of this period was spent in England where he wrote extensively for the scientific publications. Meanwhile his geographical studies had taken shape in a volume on the *Glacial Period and Orography of Asia* which made him an international reputation. He returned to Switzerland after a short stay in England and joined there the International Workingman's Association. After Alexander II was assassinated he was expelled from Switzerland and settled in Savoy. He was there arrested on the charge of instigating dynamite outrages at Lyons and although there was no basis for the accusation was condemned to five years' imprisonment in 1883. The matter having come up in the French Chamber of Deputies, protests against his imprisonment were raised and he was released in 1886. He thereupon took up his abode in England where he was staying when the war broke out in 1914. He returned to Russia in 1917 and from that time on little was known about him, except that in 1920 a severe criticism by him of the

Bolshevik régime was made public. In this he argued that an attempt to build up a communist republic on the dictatorship of a minority was destined to failure.

KURDISTAN. A region lying to the south-east of Armenia and chiefly within the limits of the former Turkish empire, but partly also within Persia. Area, estimated at 74,000 square miles; population, estimated at 3,000,000, of whom four-fifths were Kurds. In the old Turkish empire the region was included in the vilayet or province of Armenia and Kurdistan.

KUROPATKIN, ALEXEI NIKOLAIEVITCH. Russian general, died, October 18. He was the foremost Russian general in the Russo-Japanese war. He was born in 1848, entered the army at the age of sixteen, served with distinction in Turkestan in 1865-68 and afterwards attracted attention by his services in the Russo-Turkish war, 1877-78. He was made a lieutenant-general and governor of the Transcaspian territories in 1890. He became minister of war in 1898. At the time of the outbreak of the Russo-Japanese war he was placed in supreme command in the east but after the battle of Mukden in March, 1905, he was placed at his own request in command of the first Manchurian army. An account of his connection with the war is given in Story's *Campaign with Kuropatkin* (London, 1904) and also in Kuropatkin's own narrative *The Russian Army and the Japanese War* (New York, 1909).

KURZ, SELMA. See MUSIC, Artists, Vocalists.

KUSTENLAND. See COASTLAND.

KUTZ, GEORGE FINK. Naval officer, died at San Francisco, Calif., August 9. He was born at Wilkes-Barre, Pa., June 14, 1835; and entered the navy as third assistant engineer, June 30, 1856. During the Civil War he took part in the battles of Port Hudson, College Point, Donaldsonville, and Mobile Bay. Before that he had served on the Atlantic cable expedition and on the Paraguay expedition. He was fleet engineer of the Asiatic station, 1876-77, and of the Pacific station, 1881-83. He was three times chief engineer at Mare Island, holding that position at the time of his retirement, June 26, 1896. He was raised to the rank of rear-admiral in 1906 in recognition of his services during the Civil War.

KWANGCHOW-WAN. A small region on the coast of the Chinese province of Kwangtung, leased from China by France in 1898 and administered under the authority of the governor-general of Indo-China. Area, about 190 square miles; population, about 168,000.

KWANGTUNG or KWANTO. A territory in the southern part of the Liaotung Peninsula, leased from China by Japan as a successor to the Russian leasehold after the Russo-Japanese war. Area, 538 square miles; population, Dec. 31, 1919, 600,644, of whom 65,692 were Japanese, exclusive of the army and navy. Imports (1919) 107,186,929 Haikwan taels; exports, 103,733,007 yen. The estimated revenue and expenditure for 1920-21 balanced at 12,246,092 yen. The seat of administration is at Dairen, formerly called Dalmy, which has an excellent harbor, free from ice all the year, and is connected by rail with Port Arthur, Mukden, Harbin, and the eastern Chinese railway systems. The region is under a Japanese governor-general. Kwangtung is also the name of a province of China (q. v.).

L

LABOR. See CHILD LABOR; COOPERATION; INTERNATIONAL COOPERATION; LABOR ARBITRATION AND CONCILIATION; LABOR LEGISLATION; MINIMUM WAGE; OLD AGE PENSIONS; STRIKES AND LOCKOUTS; TRADE UNIONS; UNEMPLOYMENT; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION, and articles on GREAT BRITAIN and other foreign countries.

LABOR, AMERICAN FEDERATION OF. The Federation held its forty-first annual convention at Denver, Col., June 13-25, 1921. There were 509 delegates seated, representing 93 international and national unions, 4 departments, 32 State branches, 113 central bodies, 46 local trade and federal labor unions, and 5 fraternal delegates. Although the convention reflected without exception last year's officers there appeared a distinct opposition to the policies of that administration. Mr. David J. Saposs of the Labor Bureau says: "It would seem from the action of the delegates on the issues before the convention, as contrasted with their choice of officers, that the American labor movement has entered a period of transition. While it no longer hesitates to reject fundamental views of its leaders, it is reluctant to replace them." Undoubtedly the onslaught of open-shop campaigns persuaded many to cling to their ablest and most seasoned leader even though they considered his policies to be lacking in vigor. As last year, the storm centre of the convention was a resolution concerned with government ownership and democratic operation of railways; and, as last year, the vote on the issue was a decisive rout for the administration and victory for government ownership. The Gompers element prevailed, however, despite opposition, in repudiating the Soviet dictatorship of Russia; in opposing affiliation with the International Federation of Trade Unions until such amendments as would guarantee the autonomy and independence of the A. F. of L. should be made; and in substituting a resolution reaffirming recognition of the Irish Republic for one demanding a boycott of England until such recognition should take place. Other resolutions were passed requesting:

- An investigation of the Mingo miners.
- An investigation of the lockout of seamen.
- Cooperation of Textile Workers of America to elevate level of southern cotton mills.
- That the American Federation of Teachers be more substantially assisted by the American Federation of Labor.
- That the executive council back the movement for complete organization of the lumber industry in the Northwest.
- The further organization of office workers.
- The appointment by the president of the American Federation of Labor of a committee to report on unemployment.
- That every effort be made to secure sufficient appropriation for the United States Employment Service.
- State, county, and municipal governments to carry out public works now under consideration.
- The executive council to cooperate with affiliated organizations of civil-service employees to secure legislation giving such employees the right to hearing and appeal upon demotion or discharge.
- The executive council to cooperate with representatives of affiliated organizations to secure legislation liberalising the United States pensions and workmen's compensation acts.

The appointment of a committee on grievances for colored railway freight handlers and station employees.

Legislation forbidding the importation of labor until conditions become stabilized.

The exclusion of Asiatics.

A protest against "the campaign for the destruction of the United States Department of Labor" and recommending that the executive council continue its effort to preserve that department intact.

The increase and broadening of the services of the United States Department of Labor.

That steps be immediately taken to bring about the permanent organization of the nonpartisan political campaign.

The continuation of the Federation's special committee on health insurance.

The executive council "to aid to the utmost the workers in the packing industry.

Legislation to control the meat packers.

That the cooperative bureau of the American Federation of Labor be continued.

An investigation of "self-instituted cooperative societies" not operated in accordance with Rochdale principles.

Legislation in re cooperative banks and credit unions similar to that in Massachusetts.

Indorsement of the Personnel Research Foundation and authorising the continuance of the relation between that organization and the American Federation of Labor.

The continuation of the information and speakers' bureau of the American Federation of Labor.

The establishment of conference boards of organized workers and employers.

That the trades-union be recognised "as the basic unit and not the group as limited by the single shop or establishment."

Protest against compulsory investigation of industrial disputes.

That the law establishing the Kansas Court of Industrial Relations be repealed.

Protest against fixing wages by the cost of living, statement being made that "there are but two avenues to higher standards of living for our people"—the elimination of waste and increased productivity.

Protest against the legal fixing of the wages of adult male workers in private employment.

Protest against retail or general sales tax or any other tax on consumption, and demanding the retention of income and excess-profits taxes until war costs have been met.

The issuance of monthly statement by the United States Department of Labor showing the cost of manufacture of those staple articles which form the basis of calculation in fixing the cost of living.

The continuation of the work of the Federal Trade Commission in securing and publishing information on ownership, production, distribution, sales, and profits in the basic industries.

That central bodies consider the practicability of establishing daily labor papers.

Alertness on the part of organized labor to prevent perversion of the schools.

Approval of the appointment by the executive council of a permanent committee on education.

The amendment to the Volstead law so as to permit the manufacture and sale of beer.

Indorsement of the printing trades-union 44-hour week campaign.

Protest against demanding the 6-hour day and the abolition of overtime.

That international and national organizations which do not now admit women to membership give early consideration to this matter.

The passage of the Sheppard-Towner maternity bill.

The indorsement of proposed legislation for the relief of trade-unionists with reference to the issuance of injunctions and other matters.

Congressional resolution to prevent the courts declaring laws invalid.

That the United States call a conference on disarmament.

The membership in 1920 was 4,078,740; the average membership for the fiscal year 1921 is 3,906,528. This includes 36,247 local unions in 110 national and international unions and 941

local and federal labor unions. The voting strength in 1920 was 41,307, and in 1921, 40,410. Reports from international organizations, which were not complete, however, show that there were 1635 strikes during the past year, involving 191,934 persons. The total expenditure to sustain members on strike was \$3,462,175.09, which includes \$213,474.65 donated by other unions for the assistance of the strikers.

A total of \$3,046,300.62 was paid out in death benefits by affiliated international organizations during the past year, \$1,209,903.49 in sick benefits, and \$903,461.49 in unemployment benefits. These figures did not cover benefits paid by local unions and therefore represented only a part of the total amount paid out by trade-unions in this connection. Officers for 1921-22: President, Samuel Gompers; Secretary, Frank Morrison; Treasurer, Daniel J. Tobin.

LABOR ARBITRATION AND CONCILIATION.

Significant events in the field of arbitration and conciliation in the United States during the year were: (1) The adjustment of the dispute between the packing companies and their employees by conference in Washington of the representatives of employers and employees and the Secretary of Labor. (2) The decision on the part of the executive council of the International Typographical Union to uphold the principle of industrial arbitration in the printing industry of New York City, and to submit their wage controversy with the printing houses to arbitration. (3) The establishment by the Pennsylvania Railroad System on Jan. 1, 1921, of a joint reviewing committee for the "amicable settlement, by joint conference, of all controversial questions affecting the engine and train service men." The plan, "which constitutes probably the most important single step yet taken toward the permanent banishment of the causes of railroad strikes," involved 51,000 employees. In announcing the plan the railroad company remarked: "In reaching this understanding, the employees have accorded full recognition to the principle that all labor differences ought to be, and are, capable of peaceful and rational adjustment. On its part, the management has, for the first time in the history of American railroads, given affirmative recognition to the right of employees to participate, on equal terms with the management, in decisions affecting their welfare and working conditions." Undoubtedly, action on the part of the Pennsylvania Railroad System was made necessary by the dissolution on Dec. 9, 1920, of the three railway boards of adjustment established by Wm. G. McAdoo during Federal control of the railroads. (4) The decisions on June 1 and June 25 of the United States Railroad Labor Board authorizing wage reductions resulting in a saving of practically \$400,000,000 to the one hundred-fifty odd roads involved.

A plan for arbitration and conciliation which seems to be very successful is that in operation in the electrical industry in the United States and Canada. It consists of a council on industrial relations composed of five members from each of the member organizations (i. e., the National Association of Electrical Contractors and Dealers and the International Brotherhood of Electrical Workers) which, on occasion, forms boards of conciliation. The member organizations bind themselves by their election of representatives for service on

such boards to accept their unanimous decisions, or failing this, to accept the unanimous decision of the council. The plan is voluntary, no local union or employer being compelled to refer a case to the council. It had been functioning for about a year when reported in May, 1921, and in that time had settled 90 disputes without the loss of a day's work and with only publicity and public opinion for its weapons.

No new States created boards of arbitration, and California in July repealed the act of 1891 which created a State board of arbitration. Colorado passed a law requiring employers and employees to give each other at least 30 days' notice of intended changes affecting hours or wages, in addition to giving notice to the Industrial Commission as required before; and providing penalties or injunctions against strikes or lockouts declared pending the decision of the Commission on labor disputes submitted thereto.

GREAT BRITAIN. The Industrial Court created by act of Parliament, December, 1919, had by the close of May, 1921, handed down approximately 650 decisions. The carrying out of the awards of the court is voluntary, depending solely upon the honor and civic sense of the disputants, and yet Sir Wm. Mackenzie, president of the court, described the number of awards repudiated by the losing side as "almost negligible." The court is a permanent industrial tribunal. It charges no fees and consists of thirteen persons. Of these, four, including the president, are designated as "independent persons," others as "representing employers," others as "representing workmen," while two are women members. It is not the practice for the whole court to hear any one case. The usual procedure is for each case to be heard by a division of the court, consisting of the president or a chairman as an "independent person" and other members "representing employers" and "representing workmen," respectively. If women are, or are likely to be, affected, a woman member is also usually added. This system is subject to variation with circumstances, and cases are not infrequent where a member of the court will sit alone. The constitution of a division of the court is in the discretion of the president. The minister of labor appoints the members of the court, which, however, is a wholly independent body, subject to neither government control nor influence. London is the chief seat of the court, but sessions are also held from time to time in other industrial centres in England, Wales, Scotland, and Ireland. The court functions in an advisory and consultative capacity as well as judicially. The minister of labor may refer matters to this tribunal for opinion whenever he deems advisable. The president of the court considers industrial arbitration "a plant of tender growth." He believes, however, that the industrial court may reasonably be expected to shape and express the increasing sense of social justice and "to establish a recognized body of principles by which industrial questions can be judged."

COLOMBIA. In October, 1920, additions were made to the strike laws of 1919; these additions prohibit strikes or lockouts until three steps in the settlement of the dispute have been tried and failed, namely, direct settlement, conciliation, and arbitration.

HOLLAND. A bill designed to effect voluntary arbitration of labor disputes was introduced into

the Dutch parliament early in 1921 by the minister of labor.

ROUMANIA. In August, 1920, a bill for the settling of labor disputes, introduced by the minister of labor, became law.

SWEDEN. Announcement was made in October, 1920, of the appointment by the Riksdag of a central arbitration board for the settlement of labor disputes whose object is to render it easier for workmen and their employers to have collective agreements correctly interpreted. Appeals to the board are voluntary, and the decision will be final.

LABOR CONFERENCE, INTERNATIONAL. The third session of the International Labor Conference was held October 25–November 19. The principal international agreements adopted were as follows: The general rule of one day's rest in seven; authorization of the industrial pensions among agricultural workers; non-employment of children under fourteen during compulsory school hours; compensation laws now applying to industrial workers to be extended to agricultural workers; no persons under eighteen years of age to be employed as stokers or trimmers in ships; compulsory regular medical examination of persons under age employed on ships. A resolution was passed requesting international officers to make a special inquiry into the unemployment crisis and the means of combating it. Among the regulations voted by the conference were the following: Women engaged in agriculture to have nine hours' rest; children under fourteen to have ten hours' consecutive rest and persons between fourteen and eighteen, nine hours; maternity protection to be extended to women agricultural workers; measures for the improvement of living conditions among agricultural workers; measures for dealing with agricultural unemployment; extension to agricultural workers of social insurance laws now applying to industrial workers to agricultural workers; development of technical education under government initiative for agricultural workers to the same degree as for others; one day's rest in seven recommended for commercial establishments as a general rule.

LABOR LEGISLATION, AMERICAN ASSOCIATION FOR. This is the American branch of the International Association for Labor Legislation. It collects data on labor legislation, conducts propaganda for the passage of desirable legislation, and issues a quarterly, *The American Labor Legislation Review*. Secretary, John B. Andrews, 131 East 23d St., New York City.

LABOR LEGISLATION. Mr. John B. Andrews, secretary of the American Association for Labor Legislation, summarized the labor legislation of 1921 as follows: Despite the persistence of reaction throughout the year and the consequent paucity of constructive measures in the 1921 output of new labor laws, there were some conspicuous advances in legislation for the protection of the safety and health of the workers. Of particular import was the progress made in Federal-State cooperation for maternity protection and for vocational rehabilitation of industrial cripples. Passage by Congress on November 23 of the Sheppard-Towner bill for maternity and infancy protection, crowning with victory a three-year intensive campaign, found six States prepared for immediate action, having accepted in advance the Federal aid now available. (See MATERNITY PROTECTION.)

Twenty-three additional States in 1921 enacted legislation accepting the new Federal act for vocational rehabilitation, making a total of thirty that had adopted this significant development in workmen's compensation legislation. Acute unemployment continued throughout the year, yet Congress and more than forty States met in legislative session and adjourned with apparent indifference to the immediate need for adopting a constructive programme of legislation for permanently combating the disastrous results of industrial depression. California, alone, took a forward step in enacting a law for long time advance planning of public works by the State to help in preventing unemployment. The Kenyon bill recently introduced in Congress aimed to set the Federal government upon a similar course of distributing public works intelligently. In Wisconsin a bill for unemployment compensation was advanced by a favorable report from the senate judiciary committee—and the nation-wide interest in this legislation, as reflected in the press, gives promise of State action that may open the door to an era of statesmanship in America in dealing with unemployment. World-wide protection of labor was given further impetus by the Third International Labor Conference which met at Geneva, October 25 to November 19, and adopted fifteen draft conventions and recommendations for safeguarding industrial, commercial, and agricultural workers (see LABOR, INTERNATIONAL CONFERENCE OF). See also CHILD LABOR; LABOR ARBITRATION; MINIMUM WAGE; OLD AGE PENSIONS; SOCIAL INSURANCE; UNEMPLOYMENT; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION.

LABRADOR. The peninsula in British North America between the Atlantic ocean and the Hudson Bay, lying within the province of Quebec except for the small strip along the northeast coast which is dependent on Newfoundland. It is the most eastern portion of the American continent. The part that is dependent on Newfoundland has an area of 120,000 square miles, and its population in 1919 was estimated at only 3647.

LABUAN. A small island off the northwest coast of Borneo under the administration of Singapore since Jan. 1, 1907. Area, 28½ square miles; population, estimated in 1918, 6848, most of whom were Malays from Borneo. Capital, Victoria with a population of about 1500.

LADD, GEORGE TRUMBULL. University professor and authority on philosophy and psychology died, August 8. He was born at Painesville, Ohio, Jan. 19, 1842; graduated at Western Reserve University, 1864, and the Andover Theological Seminary in 1869. He was pastor for several years, first at Edinburg, Ohio., and then at Milwaukee, Wis. In 1879 he became professor of philosophy at Bowdoin College, but in 1881 was appointed to the chair of philosophy at Yale which he held until his retirement in 1905. He was on many occasions invited to lecture before learned bodies in this country and abroad, and delivered courses in Japan, India, Hawaii, and France; and was the recipient of numerous honors both in the United States and abroad. His writings were voluminous. The following is a partial list: *Principles of Church Polity*, 1882; *Doctrine of Sacred Scripture* (2 vols., 1883); *Lotze's Outlines of Philosophy* (transl., 6 vols., 1887); *Elements of Physiological Psychology*; *What is the Bible?*

(1888); *Introduction to Philosophy* (1889); *Outlines of Physiological Psychology* (1890); *Philosophy of Mind* (1891); *Primer of Psychology* (1894); *Psychology, Descriptive and Explanatory* (1893); *Philosophy of Knowledge* (1897); *Outlines of Descriptive Psychology* (1909); *Essays on the Higher Education* (1899); *A Theory of Reality* (1899); *Lectures to Teachers on Educational Psychology* (in Japanese only); *Philosophy of Conduct* (1902); *Philosophy of Religion* (2 vols., 1905); *In Korea with Marquis Ito* (1908); *Knowledge, Life and Reality* (1909, 2nd ed., 1918); *Rare Days in Japan* (1910); *Elements of Physiological Psychology* (revised and rewritten, 1911); *The Teachers' Practical Philosophy* (1911); *What Can I Know?* (1914); *What Ought I to Do?* (1915); *What Should I Believe?* (1915); *What May I Hope?* (1915); *The Secret of Personality* (1918); *Intimate Glimpses of Life in India* (1919).

LAFAYETTE COLLEGE. An institution for the education of men at Easton, Pa.; founded in 1826. There were 832 students enrolled for the fall session of 1921. The faculty numbered 68 including 18 new members. The income for the year was about \$70,000. There were 45,000 volumes in the library. President, John Henry MacCracken, Ph.D., LL.D.

LAMB, ROLAND O. Life insurance official, died at Boston, Mass., November 14. He was born at Beverley, Mass., Dec. 20, 1850; educated in the public schools; and became bookkeeper in a manufacturing house. He afterwards became a bookkeeper in the John Hancock Life Insurance company and rose through the successive grades to the position of vice-president in 1899. After 1909 he was president of the John Hancock Mutual Insurance company, and a director of other important financial institutions.

LAMBS. See LIVE STOCK.

LAMBUTH, WALTER RUSSELL. Methodist Episcopal bishop, died at Yokohama, Japan, September 26. His election as bishop of the Methodist Episcopal Church, South, occurred in 1910. He was born at Shanghai, Nov. 10, 1854. He was sent to the United States to be educated and after graduating at college and at a medical school, he engaged in foreign mission work. Having been appointed in 1881 Superintendent of the China Mission, he founded the Hospital in Suchow where medical students were trained, and afterwards reopened the Methodist Hospital in Peking and organized the medical department of the Methodist University. He worked for five years in the Japanese Mission, having been appointed Superintendent in 1886.

LAND BANKS. See AGRICULTURE.

LANDS, PUBLIC. According to the annual report of the Commissioner of the Land Office, the total area of public and Indian lands originally entered and allowed during the fiscal year ended June 30, 1921, was 15,631,630.96 acres, not including 315,915.71 acres embraced in finals not previously counted as original disposition of land. The latter area was constituted as follows: Public auction, 119,138.82 acres; abandoned military reservations, 8315.63 acres; cash and private sales, individual claimants and small holding claims, 29,133.19 acres; preemption entries, 12,178.38 acres; soldiers' additional homesteads, 5614.76 acres; timber and stone entries, 80,668.55 acres; mineral entries, 57,472.16 acres; coal entries, 3394.02 acres. The area of 15,631,630.96 acres is

a decrease of 805,880.59 acres, as compared with the area originally entered and allowed during the fiscal year 1920. Of the total area originally entered and allowed during the fiscal year 1921, 10,313,732.89 acres were allowed under the stock-raising homestead act of Dec. 29, 1916.

The area patented during the fiscal year was 10,117,809.751 acres, a decrease of 1,732,591.586 acres, as compared with the fiscal year 1920. Of the above area 8,172,802.160 acres were patented under the homestead laws, a decrease of 1,067,101.096 acres, not including as homesteads 8424.16 acres patented as soldiers' additional entries.

The total cash receipts from sales, leases, and other disposition of public lands (including reclamation water-right charges and receipts for copies of records, sales of government property, etc.) for the fiscal year 1921 were \$10,486,314.36; from sales of Indian lands, \$903,371.93; and from leases of naval petroleum reserve lands, \$3,118,511.07, an aggregate of \$14,508,197.36, all of which was deposited in the Treasury.

Of surveys that could be properly measured on a mileage basis, 5420 linear miles were run in the United States proper and Alaska during the fiscal year, approximately the same amount as that of last year and with a slightly decreased cost, due largely to more satisfactory labor conditions and field transportation.

At the beginning of the fiscal year there were pending in homestead entries 6524 cases; during the year 63,816 cases were received as against 86,684 the previous year. At the close of the fiscal year there were pending and unacted upon 9715 cases. On that date 62,401 stock-raising homestead entries had been made since the passage of the act, covering an area of 24,337,816.28 acres; while the Geological Survey had received 92,325 petitions for designation and acted upon 84,882, having designated up to the close of the fiscal year 105,960,264 acres, which includes a considerable area already covered by entries or applications. In 1921, 4299 patents, covering an acreage of 1,249,592.63 acres, were issued, and since the passage of the act 5731 patents, embracing an acreage of 1,630,596.34 acres, had been issued. During the year 111 new applications were received, as against 327 the previous year. Final action was taken during the year on 281 cases, leaving 221 pending.

LANE, FRANKLIN KNIGHT. Former Secretary of the Interior, died at Rochester, Minn., May 18. He was born near Charlottetown, Prince Edward Island, July 15, 1864; removed to California in his youth, and studied at the State university. He became reporter, and later New York correspondent for western papers and editor and part owner of the Tacoma *Daily News*, but after 1889 when he was admitted to the bar he practiced law at San Francisco. He was corporation counsel of the city from 1897 to 1902, gaining a high reputation for his ability and honesty. He was an unsuccessful democratic candidate for governor in the following year and for United States Senator in 1903. From 1905 to 1913 he served on the Interstate Commerce Commission, having been appointed by President Roosevelt, and he was made chairman of that commission in 1913. From this office he was called to the cabinet of President Wilson in the same year. His administration of the Department of the Interior was highly praised for its firm stand in respect

to the conservation of the public resources, especially in the matter of the coal lands. He retired from office, March 1, 1920.

LANGDON, WOODBURY. Financier, died at Portsmouth, N. H., October 24. He was born in 1836 and after a successful business career at Boston, Mass., where he founded an important drug firm he acquired various interests in New York, serving as trustee of the New York Life Insurance company, the New York Trust company and other financial institutions of the city. In 1894 he was on the Committee of Seventy that attacked Tammany.

LANGE, CHRISTIAN L. Leading Norwegian pacifist received the Nobel Peace Prize along with Hjalmar Branting in 1921. He was born in Norway in 1869. He was secretary to the Nobel committee in the Storting or parliament, and professor of history at the Norwegian Nobel Institute. In 1920 he became general secretary of the Interparliamentary Union, and in 1907 he was the Norwegian representative at the second peace conference at The Hague. He was one of

were in operation, with 750 employees and an estimated monthly production of about 684,000 pounds of paper and cardboard. Small establishments manufacturing miscellaneous goods numbered 238, with a total employed force of 1175 workers. The forest resources are extensive.

COMMERCE. The chief exports have been flax and timber. The flax crop available for export in 1920-21 was estimated at 16,000 tons, an increase of over 50 per cent from the previous year, but still far short of the prewar crop, which averaged 35,000 tons. Complete figures for trade were not available but the following information as to the foreign trade at the port of Riga was supplied by the United States Bureau of Foreign and Domestic Commerce.

Imports at the port of Riga, Latvia, in 1920 nearly tripled those of 1919 in weight. Foodstuffs ranked first, followed by raw materials, etc., with manufactured goods coming third. Figures for 1919 and 1920 are given in the following table in which conversions are made on the basis of 62 poods to the long ton:

IMPORTS THROUGH THE PORT OF RIGA, BY WEIGHT, 1919-20

Commodities	1919		1920	
	Poods	Long tons	Poods	Long tons
Foodstuffs.....	4,043,824	65,223	1,891,744	27,286
Raw materials, half-manufactured goods, building material, and fuel.....	1,019,226	16,439	180,738	2,593
Manufactured goods.....	526,062	8,485	71,879	1,159
Animals.....	49,006	790	289	4
Total.....	5,638,118	90,937	1,924,630	31,042

the committee spoken of when the prize was awarded to Woodrow Wilson in 1920. He represented Norway at the League of Nations Assembly, and at the meeting in the autumn of 1921 he drew attention by his severe criticism of the League Council for doing nothing in regard to disarmament. He said that a few great Powers of the League were blocking disarmament despite the wishes of most of the nations of the world. He wrote many volumes and articles for the promotion of the cause of peace.

LAOS. See FRENCH INDO-CHINA.

LARSEN AIRPLANE. See AERONAUTICS.

LATVIA. One of the new Baltic states formed after the war out of territory formerly within the old Russian empire, comprising the former Russian province of Courland together with the four southern districts of Livonia and the three western districts of Vitebsk, but claiming also strips of territory in the former provinces of Grodno and Pskov, and in Eastern Prussia. Total area, exclusive of claims, about 24,440 square miles; population, June 15, 1920, 1,503,193, of whom 87,103 were foreigners. Of the Latvian citizens 80.41 per cent were Letts. The interests are chiefly agricultural, but latterly industrial activity has increased. The number of industrial establishments actually in operation in Latvia in the spring of 1921 was 970, with a total employed force of 11,778. The metal-working establishments numbered 442 and employed a force of 4403 workers. In the textile industry 157 small establishments were occupied with a force of 2800, and had an estimated monthly output of 1,368,000 pounds. Thirty-two chemical works were in operation, employing a total of 900 workers. Mineral-working establishments totalled, 94, with 1750 employees. Seven paper factories

A considerable part of the 1920 imports came from Germany—drugs and chemicals, 20 per cent, roofing felt, 50 per cent, fertilizers, 55 per cent, electric apparatus and supplies, 45 per cent, fayence ware, 100 per cent, tanning materials, 40 per cent, glass, 66 per cent, rubber ware, 18 per cent, hides, 70 per cent, tools, 30 per cent, lamps, 78 per cent, machinery and machine parts, 28 per cent, metals, 35 per cent, metal ware, 61 per cent, salt, 75 per cent, coal, pitch, 100 per cent, wood pulp, 37 per cent, and bricks, 100 per cent. Trade between Latvia and Germany, discontinued in consequence of political differences, was not resumed until the last third of 1920.

Exports at the port of Riga during 1920 consisted chiefly of raw materials and amounted to 7,050,554 poods (113,719 tons). During 1919 only 639,587 poods (10,316 tons) were exported, of which 456,000 poods (7355 tons) were timber and 117,000 poods (1887 tons) were flax.

FINANCE. The figures in the table on page 412 on the financial status of Latvia were supplied by the United States Bureau of Foreign and Domestic Commerce based on a statement issued by the Minister of Finance in the summer:

RAILWAYS. The extent of railway line was approximately 2900 kilometres, all of which with the exception of a short line of 48 kilometres were owned by the government. The lines are of five different gauges, ranging from 1525 millimetres to 600 millimetres. The main lines are those connecting Riga with the ice-free ports, and the lines running from those ports into the interior of Russia; also a line in the south running through Kovno to Berlin.

GOVERNMENT. The free state of Latvia was proclaimed at Riga in November, 1918, and was recognized by the principal Powers with the

Items	Amounts	Equivalent in gold francs
National wealth (estimated).....		7,600,000,000
Government.....		2,600,000,000
Private (3,012 francs per head).....		5,000,000,000
Indebtedness, foreign.....		51,095,437
United States Government.....	dollars 2,521,899	} 25,918,044
American Relief Administration.....	do. 2,610,417	
French Government.....	francs 14,568,399	1,825,350
Norwegian Government.....	crowns 6,738,127	4,918,833
United Kingdom.....	pounds sterling 20,169	383,211
Private banks.....	do. 950,000	18,050,000
Indebtedness, internal.....		18,003,960
Government loans.....	Latvian rubles 16,395,000	163,960
Currency notes (paper) ¹ issued up to June 17.....	do. 1,784,000,000	17,840,000
National deficit:		
For 1920-21 (approximate).....	Latvian rubles at 50 2,200,000,000	44,000,000
For 1921-22 (approximate).....	Latvian rubles at 100 2,000,000,000	20,000,000
Liquid funds.....		41,902,056
Gold (approximate).....		11,215,565
Other coin and foreign notes, etc. (approximate).....		2,600,741
Securities and bills (loans), etc. (approximate).....		6,843,750
Flax (about 5,000 tons at £70).....		6,650,000
Timber (about 550,000 pieces, equaling 44,000 standards ² at 6d. per cubic foot).....		10,032,000
Sawn wood (about 20,000 standards at £12).....		4,560,000
Immediate needs for 60,000 new farms.....		1,114,992,000
Buildings.....		626,382,000
Live stock, etc.....		216,270,000
Farm machinery.....		128,160,000
Other machinery.....		108,936,000
Seeds.....		35,244,000

¹ Probably paper francs.

² Currency issues (paper) authorized equal 2,520,000,000. Of the amount actually issued, that given out by municipalities is as follows: Riga, 8,000,000 Latvian rubles; Libau, 2,800,000 rubles; Mitau, 1,000,000 rubles; or a total of 11,800,000 rubles, equivalent in value to 118,000 gold francs.

³ A standard of squared timber equals 1650 board feet; of boards, equals 1980 board feet; of logs, equals 1320 board feet.

exception of the United States, which withheld recognition pursuant to the policy respecting Russia laid down by the Wilson administration. A constituent assembly was elected, April 17-18, 1920, on the basis of universal suffrage for adult citizens of both sexes, and consisting of 152 members, of which the largest group were the Social-Democrats (52 members). It met, May 1, 1920, and its work on the constitution was going on in that year and in 1921. Meanwhile a coalition government was formed, representing all parties with the exception of the Social-Democrats, and responsible to the constituent assembly until that body should be replaced by a regular parliament. This provisional government consisted of a ministry with the following departments: Interior, foreign affairs, finance, national defense, public instruction, justice, agriculture, trade and industry, supplies, and a state controller. The prime minister at the beginning of 1921 was K. Ulmanis.

An economic conference of the Baltic States, Russia, and Finland was in session at Riga, the Latvian capital, until the first week in November. It came to an understanding in respect to future agreements on transport among the states concerned, and it provided for a permanent economic bureau at Riga, representing the countries participating in the conference.

LAURENS, JEAN PAUL. See **NECROLOGY.**

LAW, JAMES. Veterinarian and former dean of Cornell Veterinary College, died, Springfield, Mass., May 10. He was born in Scotland in 1838; and educated in veterinary science at Edinburgh and in France. After serving on the faculties of veterinary colleges in Scotland and England he came to the United States, and became professor of veterinary science at Cornell University, holding that chair until 1896 when he was appointed dean and director of the New York State Veterinary College, established at the university. In 1908 he retired from active work,

becoming dean emeritus. He did important work for the New York Agricultural Society and as field chief of the Bureau of Animal Industry of the United States Department of Agriculture, and was the author of: *General and Descriptive Anatomy of Domestic Animals* (1861-62); *The Farmers' Veterinary Adviser* (1876); and a text-book of veterinary medicine, five volumes (1905-11). It is largely due to his labor that veterinary work in this country became a genuine profession, and at first he stood almost alone in his demand for higher veterinary education. The veterinary college at Cornell University which resulted from his influence and personal efforts was the first state-supported institution of the kind in the United States.

LAWN TENNIS. See **TENNIS.**

LAWS, SAMUEL SPAHR. Educator and inventor, died at Asheville, N. C., January 9. He was born in Ohio County, Va., March 23, 1824; graduated at Miami University in 1848 and at the Princeton Theological Seminary in 1851. He also studied both law and medicine. He was ordained to the Presbyterian ministry in 1851, and was pastor of a church in St. Louis, 1851-53. He was president of the University of Missouri, 1876-89. From 1893 to 1898 he was professor of natural science and Christian apologetics at the Presbyterian Theological Seminary at Columbia, S. C. He invented and introduced a system of market tickers for simultaneous telegraphic reports. Besides a large body of occasional writings which he collected in several volumes, he published: *The Atonement*; and *The Trinity*.

LEAD. The following information in regard to the lead industry in 1921 was supplied by the United States Geological Survey: The mine and smelter output of lead in the United States in 1921 fell off about 20 per cent. The output of soft lead by mines of the Mississippi Valley was about 231,000 short tons, and that of argentiferous lead by mines of the Western States was about 170,000

tons, a total of 401,000 tons. The corresponding figures for 1920 are 251,816 tons from the Mississippi Valley (including the small output of the Eastern States) and 259,070 tons from the Western States, a total of 512,885 tons. The southeastern Missouri district made the largest output and was the only district to make a gain. Its output was 178,000 tons, as compared with 161,258 tons in 1920. The Cœur d'Alene district of Idaho came next, with about 96,000 tons, as against 118,105 tons in 1920. Utah made an output of about 45,000 tons, a decrease from 70,419 tons in 1920. The imports of lead in ore were about 7000 tons, furnished chiefly by Canada, Mexico, and South America, and those of lead in bullion were about 41,000 tons, almost wholly from Mexico, as compared with a total of 62,796 tons in 1920. The lead content of lead ore in bonded warehouses on November 30 was 7648 tons and of base bullion 16,207 tons, as against 16,462 and 34,758 tons respectively in 1920. Part of this lead, however, may have been smelted or refined but not shipped and thus may be included in smelter stocks.

The output of primary domestic desilverized lead in 1921 was about 190,000 short tons, of soft lead about 145,000 tons, and of desilverized soft lead about 55,000 tons, making a total output from domestic ores of about 390,000 tons of refined lead, as compared with 476,849 tons in 1920, which was made up of 220,327 tons of desilverized lead, 189,854 tons of soft lead, and 66,668 tons of desilverized soft lead. The output of lead smelted and refined from foreign ore and bullion was about 50,000 tons, as compared with 52,808 tons in 1920. The total lead smelted or refined in the United States was thus about 440,000 tons, as compared with 529,657 tons in 1920. The output of anti-monial lead was about 8000 tons, as against 12,535 tons in 1920. The exports of lead of foreign origin were about 33,000 tons and of lead of domestic origin about 700 tons, as compared with 23,538 tons and 2730 tons, respectively, in 1920, an increase of about 7000 tons in the total exports. The imports of refined pig lead, which for the years 1916 to 1919, inclusive, had been a little over 5000 tons a year and which had jumped in 1920 to 35,719 tons, maintained that high level in 1921, being about 32,000 tons. These heavy importations were the result of the relations of the New York and European prices and the rates of exchange.

FOREIGN LEAD INDUSTRY. The labor strike at Broken Hill, in May, 1919, compelled the great lead smelter at Port Pirie, Australia, to close in July, 1919, for lack of ore. It started up again after the strike settlement in November, 1920, but the sintering plant was destroyed by fire in January, 1921, compelling the smelter to close again. The reconstructed sintering plant which was completed in August, 1921, has but one-half its former capacity; so that a similar reduction was entailed in smelting capacity, amounting to about 70,000 tons annually. The Burma Corporation discontinued the erection of the new lead smelter with a capacity of 60,000 tons, and planned to extend and improve the existing plant so that it would have a capacity of 45,000 tons annually. Likewise, the plans for a zinc smelter were abandoned for the present. Half of the Risdon (Tasmania) electrolytic zinc plant, which had a rated capacity of approximately 20,000 short tons, was started in December, 1921. It was expected that the other

half would be completed by the end of 1922. As a result of the award of the League of Nations, it was indicated that Poland would make 86 per cent of the production of zinc ore and 77 per cent of the production of lead ore and would have practically all the zinc and lead smelters of Upper Silesia. The output of refined lead in Canada in 1921, estimated from the year's output in British Columbia and 9 months' output in Ontario, was about 30,000 short tons, as compared with 14,360 short tons in 1920. Burma and Rhodesia, as estimated from the output for 9 months of the year, produced about 36,000 and 19,000 short tons respectively, in 1921, as against 26,680 and 16,354 short tons in 1920. The best information available indicates that the world's output of work lead was a little over 800,000 metric tons, of which the United States smelted 40 per cent, as against 900,000 metric tons in 1920, of which the United States smelted nearly 50 per cent.

Lead mining in the United States during 1921 was on a very poor basis as regards production and business generally, while the same conditions prevailed in most of the fields of manufacture. The total output, about 400,000 tons, was 75,000,000 tons less than in 1920 and it was impossible to mine at a profit. The average price for the year, 4.54 cents per pound, to which approximately it had dropped in the last four months of 1920 from 8.90 cents, could be compared with the average price for 25 years of 5 cents f. o. b. cars New York. On one side there was the selling price at or below the prewar level, and on the other there was the vast increase in costs of mining, milling, and smelting, including of course labor which had increased by at least 75 per cent, and especially supplies and transportation. When it was considered that to move a car of pig lead from East St. Louis to New York cost in 1914 \$100 while in 1921 until December 10 the freight charge was slightly in excess of \$330 it can be seen how much of the selling price of the metal went for transportation. It was anticipated that wages could be reduced with the decline in the cost of living while there was a decline in the price of fuel from 1921 figures, and the same was more or less for other supplies. There was a frank demand on the part of the lead interests for increased protection in the forthcoming tariff act so that the United States could take care of its home market by its own lead ores, and metal rather than by the use of supplies from Mexico and Spain.

In 1921 more white lead for paint was made and sold than in any other year and this demand for lead pigments was a promising feature. The storage battery consumption of lead, which was next in importance to the paint demand, declined to about 50 or 60 per cent of the capacity which was attained in the previous year. Lead incased cables were also being made on a reduced basis, possibly 75 per cent of normal capacity, though even with the use of lighter cables and thinner sheathing this field was in a satisfactory position. Plumbing supplies and pipe for building were fairly active during the year, but there was less demand for bearing metal and solder. The foil industry was less than normal while type metals were in about the same demand as usual.

One feature of the American lead industry was the steady increase in the production of secondary lead from year to year. The U. S. Geological Survey estimated a production of 67,168 tons for

1912, but by 1919 it had reached 125,000 tons, and in 1921 it was estimated at almost the same amount. Then in addition there came to the American market a considerable tonnage of shrapnel balls imported under the classification of type metal and paying a 15 per cent ad valorem duty. Imports of this material amounted to some 16,000 tons in 1921.

century prior to the passage of the Dingley Act, June 24, 1897, hides were on the free list as both the political parties were in favor of such action, the Republicans especially wishing to retain hides on the free list as raw material and the Democrats opposing protection in any form. The Payne-Aldrich tariff act of 1909 also put hides on the free list though carrying a duty on leather and

PRODUCTION OF LEAD (REFINERY STATISTICS), 1916-21 *

Engineering and Mining Journal (New York)

Domestic	In Tons of 2,000 lbs.					
	1916	1917	1918	1919	1920	1921
Desilverised.....	330,189	319,015	284,733	226,085	236,912	202,649
Antimonial.....	22,819	16,265	18,658	14,864	8,992	5,419
S. E. Missouri.....	206,105	205,861	189,207	158,182	208,836	142,804
S. W. Missouri.....	33,128	40,575	63,635	55,790	29,004	56,155
Totals.....	592,241	581,716	556,233	454,921	471,744	406,896
Foreign						
Desilverised.....	17,832	50,962	98,596	61,380	51,700	47,697
Antimonial.....	3,304	2,991	2,083	1,547	2,197	2,361
Totals.....	21,136	53,953	100,679	62,927	53,897	50,058
Grand totals.....	613,377	635,669	656,912	517,848	525,641	456,954

* These figures include the lead derived from scrap and junk by primary smelters.

MONTHLY AVERAGE PRICE OF LEAD

Engineering and Mining Journal (New York)

Month	New York			St. Louis			London		
	1919	1920	1921	1919	1920	1921	1920	1921	1921
January.....	5.432	8.561	4.821	5.316	8.300	4.747	37.227	47.095	23.367
February.....	5.057	8.814	4.373	4.784	8.601	4.228	28.675	50.256	20.650
March.....	5.226	9.145	4.084	4.992	8.894	4.000	27.952	46.054	18.911
April.....	4.982	8.902	4.356	4.722	8.618	4.272	24.888	39.225	20.580
May.....	5.018	8.576	4.952	4.773	8.352	4.784	23.852	38.488	23.399
June.....	5.340	8.323	4.485	5.070	8.169	4.293	22.544	34.330	22.563
July.....	5.626	8.338	4.410	5.408	8.283	4.260	23.457	34.960	23.399
August.....	5.798	8.687	4.382	5.583	8.725	4.217	24.750	36.304	23.489
September.....	6.108	8.177	4.600	5.853	8.160	4.392	25.330	35.452	23.148
October.....	6.487	7.070	4.690	6.249	7.018	4.439	28.473	35.238	23.679
November.....	6.808	6.159	4.683	6.649	6.127	4.356	34.731	32.489	24.483
December.....	7.231	4.727	4.700	6.955	4.717	4.369	41.202	24.089	25.822
Year.....	5.759	7.957	4.545	5.530	7.830	4.363	28.590	37.832	22.752

New York and St. Louis, cents per pound. London, pounds sterling per long ton.

LEAGUE OF NATIONS. See WAR OF THE NATIONS.

LEATHER. In the general process of deflation the leather industry participated actively and its return to normal though painful and expensive was being accomplished satisfactorily. In some lines of manufacturing there was a waiting for lower prices which did not develop, as a turn came in the price of hides during the year and the end of December saw a stronger leather market. The latter part of 1920 and the year 1921 were severe on the tanners, but all things considered the storm and depression were weathered reasonably well. One has but to study the decline in the prices of hides from their peak values in 1919 as shown in the table on page 415 to realize the severity of the process. Then when the prices for the months in 1921 are considered the general improvement in the industry is apparent.

Naturally with the decline in hides there was a fall in the price of leather, so much so in fact that during the year both upper and sole leather sold below its replacement price and stocks were quite exhausted. There was also a decline in the prices of boots and shoes and leather goods generally, and during the year retailers and manufacturers alike were seeking to close out their stocks. See **BOOTS AND SHOES.**

It must be remembered that for a quarter of a

shoes. Consequently when it was proposed to revise the tariff and to change the status of hides and leather products, there was considerable discussion. Naturally, the stockmen, butchers and packers and a certain number of farmers sought a duty on hides and this naturally was opposed by the tanners and most of all by manufacturers of boots and shoes and leather goods generally. These in turn asked for protection on their products and claimed that with free hides that they could enter the export markets of the world. It must be realized that only about 50 per cent of the cowhides and calfskins used in the United States are obtained from the slaughterhouses of the country, while only about 40 per cent of the sheepskins are of domestic production, not to mention the goatskins and other leathers the greater part of which is imported. Not only do American cattle fail to supply the requisite amount of hides, but there was a failure due to many causes to increase the production. During 1921 at the great cattle markets of the west there were slaughtered 5,088,100 cattle and 6,707,600 sheep, as compared with 6,082,500 cattle and 7,415,000 sheep in 1920. But the decline was for more than a single year, and to show that cattle raising except for the forced activity during and immediately after the war was at least stationary if not declining, recourse may be had to the follow-

**AMERICAN HIDE PRICES
BY MONTHS FOR 1921 AND YEARLY AVERAGES 1914-21**

From Shoes and Leather Reporter

PACKER HIDES

	Heavy native steer	Heavy Texas steer	Light Texas steer	Butt brd. steer	Colorado steer	Branded cows	Heavy native cows	Light native cows	Native bulls	Branded bulls	Average
January.....	17.00	14.00	12.75	13.75	12.75	11.75	14.50	12.50	11.50	10.00	13.05
February.....	14.50	11.50	10.50	11.75	10.75	9.75	12.25	11.25	9.88	8.50	11.01
March.....	11.60	9.60	8.60	9.60	8.60	7.60	10.70	8.60	7.90	6.05	8.89
April.....	9.88	8.75	7.75	8.75	7.75	6.40	9.00	7.50	6.62	5.25	7.76
May.....	11.28	11.50	10.50	10.50	10.50	9.00	10.00	10.15	7.75	6.90	9.92
June.....	13.80	13.80	12.00	13.60	12.40	10.60	11.80	12.00	8.00	6.50	11.44
July.....	13.75	13.90	11.60	13.60	12.40	10.40	11.75	11.60	8.00	6.50	11.32
August.....	14.00	14.00	11.75	13.60	12.50	10.00	13.00	12.00	7.50	6.50	11.47
September.....	14.00	14.00	11.60	13.60	12.50	10.00	13.20	11.90	8.00	6.60	11.52
October.....	14.75	14.70	12.40	14.15	13.15	10.60	13.60	12.40	8.00	6.90	12.07
November.....	15.55	15.50	13.60	15.60	14.00	11.60	14.45	12.95	8.65	7.45	12.85
December.....	16.46	16.00	14.40	15.40	14.90	12.40	14.70	13.70	9.50	8.40	13.58
Average											
1921.....	13.88	13.10	11.43	12.83	11.85	10.00	12.41	11.37	8.40	7.13	11.240
1920.....	31.65	27.52	26.38	27.25	26.02	24.93	31.08	29.23	24.97	22.28	27.181
1919.....	39.60	35.96	35.17	35.85	34.84	34.25	37.73	39.56	31.00	27.90	35.177
1918.....	29.91	27.81	26.00	27.13	26.32	21.12	27.37	22.72	20.76	18.62	24.775
1917.....	32.70	30.94	29.68	30.23	29.73	27.35	31.59	29.59	25.03	21.73	28.946
1916.....	26.28	24.23	24.06	23.86	23.34	23.94	24.89	24.89	21.41	18.47	23.537
1915.....	24.26	21.48	21.12	21.37	20.39	20.90	23.55	22.97	19.24	16.99	21.167
1914.....	19.76	19.23	18.77	18.56	18.20	18.49	18.94	19.27	16.20	15.15	18.257

COUNTRY HIDES CENTRE

	Heavy steers	Heavy cows	No. 1 buffs	No. 2 buffs	Extreme	Country Packer brand	Country brand	Bulls	City calf skins	Kip skins	Average
January.....	12.75	10.00	10.00	9.00	11.00	9.00	7.00	8.25	18.50	16.25	11.18
February.....	11.25	8.60	8.40	7.40	9.25	7.75	6.50	7.00	15.50	13.00	9.46
March.....	8.20	6.20	6.00	4.20	6.80	6.20	4.60	4.90	15.80	12.80	7.57
April.....	7.15	5.75	5.00	3.50	5.50	5.25	4.00	4.25	16.85	12.00	6.93
May.....	8.25	7.40	6.40	4.50	8.00	6.25	4.75	4.75	21.75	15.25	8.73
June.....	8.50	6.90	6.90	5.00	8.10	6.50	5.00	5.00	19.70	14.80	8.64
July.....	8.65	6.50	6.50	5.25	8.50	6.50	5.00	5.00	19.90	15.10	8.69
August.....	9.00	6.50	6.25	5.50	8.50	7.00	5.00	5.00	20.00	17.00	8.97
September.....	9.00	6.20	6.00	5.20	9.20	7.00	5.00	5.00	20.20	18.90	9.17
October.....	9.00	7.00	7.00	6.00	10.50	7.75	5.00	5.00	19.50	18.60	9.53
November.....	10.00	8.25	8.25	6.35	11.25	9.50	5.65	5.45	18.00	17.05	9.98
December.....	10.50	8.50	8.50	7.40	10.75	10.50	6.50	5.50	17.20	16.20	10.15
Average											
1921.....	9.35	7.32	7.10	5.77	8.95	7.43	5.33	5.43	18.57	15.58	9.083
1920.....	24.20	19.27	18.93	17.93	22.79	20.60	14.94	18.76	40.98	33.97	23.237
1919.....	32.66	30.02	29.96	28.90	35.58	29.01	25.99	25.54	72.15	61.37	36.036
1918.....	21.89	18.96	18.73	17.48	19.80	19.62	15.02	15.12	40.92	26.52	21.390
1917.....	25.74	23.46	23.60	21.91	25.23	24.31	20.30	20.39	39.43	29.05	25.342
1916.....	20.75	20.17	20.37	19.35	22.68	21.86	17.84	17.28	34.55	24.84	21.969
1915.....	19.67	19.06	18.98	17.92	19.65	18.62	16.13	15.90	21.60	19.60	18.713
1914.....	16.56	16.42	16.63	15.64	17.70	16.34	14.53	13.98	21.90	19.26	16.896

ing statistics of slaughter in the establishments having Federal inspection in the United States:

Year	Cattle	Calves
1910.....	7,962,189	2,295,099
1911.....	7,781,030	2,219,909
1912.....	7,632,005	2,242,929
1913.....	7,155,816	2,096,484
1914.....	6,724,117	1,814,904
1915.....	6,964,502	1,735,902
1916.....	7,404,288	2,048,022
1917.....	9,200,489	2,679,745
1918.....	10,938,287	3,323,077
1919.....	11,241,991	3,674,227
1920.....	9,709,819	4,227,558
1921 (last 3 months estimated).....	7,200,000	3,950,000

No figures were available for the country kill and that of the small packers not having government inspection, but it was a fair inference

that they would run at least proportionate to the Federal inspected slaughter. (See table, page 416.)

Late in the year it was announced that Mexico had increased its tariff rate on boots and shoes rate of 3 pesos (\$1.50) a pair and the boot and shoe factories in the city of Mexico and elsewhere were looking for increased production. This was the second increase of the tariff on boots and shoes within the year.

In Germany at the end of the year it was reported that the leather industry was in a critical condition. At the auction sales in the different German cities there was a decline in a month of from 20 to 45 per cent. At Frankfurt no buying was reported, while at Berlin prices fell from 20 to 55 per cent. For a time during the year buyers from other European countries were active in German markets, but eventually Holland, Scandinavia, and the Baltic countries became saturated with German leather and leather products.

UNITED STATES FOREIGN TRADE IN LEATHER AND LEATHER PRODUCTS, CALENDAR YEARS 1921-22

		EXPORTS			
		1921		1920	
		Quantity	Value	Quantity	Value
Total Leather and Tanned Skins.....			\$31,831,275		\$108,875,567
Total Boots and Shoes.....	prs.	8,957,697	24,678,701	16,841,592	67,144,543
Slippers.....	prs.	61,566	97,528	227,662	538,517
Gloves.....	dos. prs.	2,920	35,338	33,359	552,930
Harness and Saddles.....			697,011		2,273,244
Leather Belting.....	lbs.	878,535	1,422,477	2,819,078	5,412,380
All other Manufactures of Leather.....			1,832,682		5,521,586
Total Leather and Tanned Skins and Manufactures.....			60,595,012		190,318,689
Hides and Skins.....	lbs.	30,510,142	4,066,534	17,401,917	6,202,886
Tallow.....	lbs.	13,797,928	1,016,753	20,691,638	2,950,676
Cottonseed Oil.....	lbs.	252,591,916	24,362,449	184,753,824	34,874,790
Extracts for Tanning.....			1,168,459		3,678,063

		IMPORTS			
		1921		1920	
		Quantity	Value	Quantity	Value
Buffalo Hides.....	pieces.	77,099		429,020	
	lbs.	1,918,050	\$ 358,481	9,483,786	\$2,721,204
Total Calfskins.....	pieces.	6,479,322		4,285,526	
	lbs.	47,937,511	10,362,961	35,132,286	19,250,661
Total Cattle Hides.....	pieces.	3,760,666		7,129,995	
	lbs.	180,186,449	23,259,352	275,324,507	85,475,324
Total Goatskins.....	pieces.	39,175,547		47,364,989	
	lbs.	63,126,227	23,871,214	80,204,637	88,640,242
Total Horse, Colt and Ass Skins.....	pieces.	120,915		596,259	
	lbs.	4,059,475	366,273	16,846,407	4,255,329
Kangaroo.....	lbs.	455,246	283,370	1,388,732	1,490,712
Total Sheepskins.....	lbs.	45,854,457	8,014,164	82,748,981	38,225,464
All other Hides.....	lbs.	4,509,907	1,045,200	9,110,286	3,828,804
Total Hides and Skins.....	lbs.	348,047,322	67,781,015	510,239,620	243,877,740
Alizarine Dyes.....	lbs.	375,112	510,038	441,756	343,519
Quebracho Wood.....	tons.	6,547	108,119	56,064	850,284
Quebracho Extract.....	lbs.	144,398,673	6,448,910	108,897,440	6,700,216
Tanning Extracts other than Quebracho.....	lbs.	10,131,473	486,775	6,409,321	306,731
Chromate of Iron.....	tons.	81,836	654,602	150,275	1,921,824
Gambier.....	lbs.	7,022,790	269,912	10,095,325	806,583
Sumac.....	lbs.	9,856,491	215,817	12,996,611	428,522
Aniline Dyes.....	lbs.	3,106,355	4,445,348	3,486,873	5,258,802
Mangrove Bark.....	tons.	2,260	119,648	6,762	316,046
Leather of all Kinds.....			8,599,517		19,324,275
Boots and Shoes.....	prs.	190,533	591,442	191,435	789,934

LEDERLE, ERNST JOSEPH. Chemist, formerly health commissioner of New York City, died at Goshen, N. Y., March 7. He was born on Staten Island, N. Y., in 1865; and graduated at the Columbia School of Mines in 1886. From 1889 to 1902 he was chemist in the New York department of health. He was health commissioner from 1902 to 1904, and afterwards president of the health commission.

LEDYARD, HENRY BROCKHOLST. Railroad manager, died at Detroit, Mich., May 25. He was chairman of the board of the Michigan Central railroad. He was born in Paris, France, Feb. 20, 1844; and graduated at the United States Military Academy in 1865. He served in the artillery until 1870 when he resigned to enter the service of the C., B. & Q. railway of which he became superintendent of the eastern division. He was afterwards general manager of the Michigan Central from 1877 to 1883, and president of that road from 1883 to 1905, after which he was chairman of the board of directors.

LEEWARD ISLANDS. A British island group lying to the north of the Windward Islands and southeast of Porto Rico, comprising Antigua, Dominica, St. Kitts, Nevis, Montserrat, and the British Virgin Islands. Area, 715 square miles; population, 127,193. The largest of the islands is Dominica with an area of 305 square miles and it is also the most populous, having 33,863 in 1911, and 40,315 in 1919. The next in size is Antigua, 108 square miles, which with the two dependent islands of Barbuda and Redonda, had a population

in 1911 of 32,269. The chief town of Dominica is Roseau with a population of 7000; of Antigua, St. John (9262); of St. Kitts, Basseterre, 8159. The British Virgin Islands consists of all the islands of the group which do not belong to the United States. (See VIRGIN ISLANDS.) The budget for 1919-20 was as follows: Revenue, £240,476; expenditure, £220,578. In 1918-19 the imports amounted to £908,401 and the exports to £912,877. The islands are divided into five presidencies and the central government consists of a federal executive council and a federal legislative council. The group is under a governor and a colonial secretary. Governor at the beginning of 1921, Sir E. M. Meredith.

LEGION, AMERICAN. An organization of the American veterans of the World War, defined in its by-laws as non-partisan, non-political, and non-sectarian, and as open to all veterans who served honorably between April 6, 1917, and Nov. 11, 1918, without distinction of rank or discrimination between overseas and American service. The third national convention held at Kansas City, October 31-November 2, was attended by delegates from every State in the Union and from Alaska, Porto Rico, and many foreign countries and by various distinguished guests, including Vice-President Coolidge, General John J. Pershing, Rear-Admiral Hugh J. Rodman, and Marshal Foch of France, Lord Admiral Beatty of England, General Armando Diaz of Italy, and General Jacques of Belgium. The report of National Commander Emery summed up the

record of the year of which the main achievements were as follows:

The greatest achievement was won for disabled veterans. According to the National Commander "the nation and the Legion itself were ignorant of the true conditions of mismanagement and neglect surrounding the administration of affairs of our disabled comrades. This state of affairs was reflected in the inactivity of the Congress and the incompetency of government agencies. In the War Risk Insurance Bureau more than one hundred thousand claims were pending which were more than one year old. The Surgeon-General of the Public Health Service was vainly pleading for money to equip ten thousand additional beds. Dissatisfaction with the work of the Federal Board for Vocational Training had reached a point where it was a subject of Congressional investigation. Disabled veterans were in dire want. Thousands were without medical care or compensation with which to obtain it. Many had taken refuge in insane asylums, almshouses, and even jails." As a result of the Legion's activities the Sweet bill was passed in August, creating the Veterans' Bureau and "displacing the incompetent old régime."

Then began the campaign for adjusted compensation which was going on with great vigor at the close of the year. The National Commander condemned the attitude of the anti-compensation Senators, and predicted the ultimate success of the Legion's efforts for soldiers' compensation, when the public fully understood the situation. In respect to the Legion's means of influence he pointed to the following agencies and activities: "There is the *American Legion Weekly*, our national magazine. The American Legion News Service, our organization for the gathering, writing and distribution of news of Legion activities, regularly is furnishing news of Legion activities to more than 10,000 newspapers which are read by 40,000,000 people. We are expanding the National Speakers' Bureau until within a few months we hope to have at hand a corps of 4000 volunteer Legion orators throughout the country. We have in process of development a Film Service, the object of which is to enable posts to utilize motion pictures as a means of increasing interest and attendance in post meetings and spreading the general aims of the Legion through special films. These four agencies of publicity—the *Weekly*, the News Service, the Speakers' Bureau and the Film Service recently have been grouped under a Director of Publicity to insure synchronization and coordination of effort."

Among the resolutions adopted the following may be mentioned:

That the American Legion recommends that the enemy property held by the United States be used to settle the claims of Americans against Germany, or held as an offset until these claims are paid in full.

That the American Legion reiterates its position in favor of the adjusted compensation for discharged soldiers, and deprecates the request of President Harding to delay passage by Congress of a measure providing for same and the acquiescence of Congress in that request.

That the sentiments expressed by America's Ambassador, Colonel George Harvey, in his Pilgrim Day Speech, setting forth the reasons for America's entry into the World War and the cause

for which America fought, does not represent the true American attitude as interpreted by the American Legion, and let it be known now and for all time that America fought not only for the maintenance of America's rights, but for the freedom of the world, and that a copy be forwarded to the President of the United States.

That the American Legion, in convention assembled, do enter a solemn protest against the mitigation of the sentence of Eugene V. Debs, or of any and all sentences imposed on obstructionists to the conscript laws, on conscientious objectors, and on violators of the laws of the United States to protect its peace and security in time of peril or to assist in the national defense, and we call attention to the impropriety of taking any such action while ex-service men are being held for trivial violations of the Articles of War.

That the American Legion indorse the idea of an international armament limitation agreement.

The Legion lost by death during the year Commander Frederick W. Galbraith, Jr., who had rendered distinguished services especially in the gathering of information in respect to disabled soldiers and the carrying on of the successful campaign on their behalf. The officers elected were as follows: National Commander, Hanford MacNider of Mason City, Iowa; National Vice-Commanders, H. Nelson Jackson, George L. Berry, Raymond O. Brackett, Charles S. Kendrick, John A. McCormick; National Chaplain, Rev. E. A. Blackman; National Adjutant, Lemuel Bolles; National Treasurer, Robert H. Tyndall; National Judge Advocate, Robert Adams; National Historian, Eben Putnam, Wellesley Farms, Mass.

The National Headquarters of the Legion are at Indianapolis, Ind.

The American Legion Auxiliary (women) with a membership in 1920 of about 200,000 held its first national convention at Kansas City, at the same time, November 1, and elected the following officers: President, Mrs. Lowell F. Hobart; Treasurer, Miss M. I. McCoy; Secretary, Miss Pauline Curnick, Indianapolis, Ind. See EDUCATION IN THE UNITED STATES.

LEHIGH UNIVERSITY. A nonsectarian institution for the education of men at Bethlehem, Pa.; founded in 1866. For the fall of 1921 there were 1052 students enrolled; of whom 763 were in the College of Engineering; 163 in Business Administration; 126 Arts and Sciences. The faculty numbered 96. The productive funds were about \$3,000,000 and the income for the year 1920-21, \$550,984. The library contained 150,000 volumes. Acting President, Vice-President, N. M. Emery.

LELAND STANFORD, JR. UNIVERSITY. A nonsectarian co-educational institution of the higher learning at Palo Alto, Calif.; founded in 1891 in memory of Leland Stanford, Jr. The enrollment in 1921 was 2500 and the faculty numbered 280. President, Ray Lyman Wilbur, M.D.

LEPROSY. In recent years the opinion has been formed by the reading public that this affection has passed into the curable class, chiefly through the intensive and systematic use of chaulmoogra oil, or the active principles contained therein. It is true that there are a number of cases on record in which the disease appears to have been permanently arrested. In other words,

it is possible for the individual with the incipient or not too far advanced case to recover relatively if everything is in his favor—that is if he have the best sanitary environment in addition to the use of the drug in question. But this is a very different proposition from curing the disease *en bloc* and emptying the leper houses throughout the world. In a recent report by the United States Public Health Service it is stated that more time must elapse before the alleged cure can be pronounced permanent. The ethyl esters which have supplanted the crude chaulmoogra oil constitute a very valuable remedy especially in young subjects and in those in the first stage of the disease. But in older subjects and older cases this remedy is less valuable. Of cases paroled from the leprosy stations in the Hawaiian Islands only about eight per cent have thus far returned for treatment which fact is very encouraging. However, the report does not state the per cent of those discharged and hence it is impossible to form any definite conclusion as to the value of the remedy.

LEWIS, WILSON SEELEY. Methodist Episcopal bishop, died at Sioux City, Iowa, August 25; He was born at Russells, N. Y., July 17, 1857, graduated at Cornell College, Iowa, in 1889; and was ordained to the Methodist Episcopal ministry. He was principal of the Epworth Seminary, Iowa, from 1888 to 1897; president of Morningside College, Iowa, from 1897 to 1908; and in the latter year was made bishop.

LEXICOGRAPHY. See **PHILOLOGY, MODERN.**

LIBERIA. A negro republic on the western coast of Africa, extending from the British colony of Sierra Leone on the west to the French Ivory Coast on the east, with a coast line of about 350 miles. Area, variously estimated at from 35,000 to 41,000 square miles; population, from 1,500,000 to 2,000,000, all of the African race, but including about 12,000 Americo-Liberians. The civilized negroes for the most part live along the coast, numbering about 50,000. Capital, Monrovia, with an estimated population, including Krutown, of 6000. No later complete figures for trade were available than those given in the preceding YEAR BOOK, but British trade with Liberia in 1920 was as follows: Exports to Great Britain from Liberia, £513,425; imports from Great Britain to Liberia, £271,527. Vessels entering Monrovia in 1919 numbered 244 of 622,844 tons, of which 483,789 were British. President at the beginning of the year, Charles D. B. King.

LIBRARY ASSOCIATION, AMERICAN. An incorporated organization founded in 1876 in Philadelphia, to promote library interest and improve library service. More specifically its working programme is: (1) To give advisory assistance to all who are interested in library establishment, extension, and development; (2) to maintain an employment bureau for librarians and libraries; (3) to attract promising and properly qualified young men and women to library work as a profession; (4) to hold conferences; (5) to raise the professional standards, dignify library service, and improve library salaries; (6) to carry on publication and publicity; (7) to assist in making books a vital, working educational force in American life and in making libraries easily accessible to all the people. Membership is open to any interested person or institution.

The Forty-third Annual Conference was held at Swampscott, Mass., in June, 1921, with an attendance of 1900. Reports showed that while library service is developing rapidly, the demand for books has increased still more rapidly, and the needs are far ahead of facilities for meeting them. The fact that there are 60,000,000 people without library facilities and many possessing them who do not use them, is the basis of the Association's plans for extension and publicity work. The Association's Library War Service has practically closed. Book service for men in the army has been transferred to the United States government, although the Association met a special need for a supply of books for Coblenz after this transfer had been made. Service to Merchant Marine vessels has been taken over by the American Merchant Marine Library Association and the transfer of the hospital service to the government is nearly completed. The American Library in Paris, Inc., to whose endowment fund the Association contributed \$25,000, is functioning independently except that its librarian is nominated and five trustees are appointed by the American Library Association.

During the year 1921 forty-three publications were issued, counting separately the individual numbers of the periodicals. They range in size from four-page leaflets to bound volumes and they include reading lists, programmes, bibliographies, proceedings and pamphlets about various phases of library work for librarians and for the public. The periodicals issued by the Association are the *Bulletin* (bi-monthly), and the *Booklist* (monthly except August and September). The latter lists, classifies, and briefly describes current books for the convenience of librarians and the reading public. Publicity material on libraries and reading, such as posters, placards, picture exhibits, and lantern slides has also been prepared and widely used, in most cases for free distribution by libraries. The total distribution of publications during the year is estimated at 257,000.

Work for the blind continues one of the important interests of the Association. The *Booklist of Revised Braille*, the fifth number of which has been issued, lists 64 books which have been brailled through the instrumentality of the Association. The year was a busy one for the employment and recruiting departments. Children's librarians are in demand at salaries slightly higher than during 1920. Other demands are for people with general training for small libraries. There are constant requests for information from individuals considering library work as a vocation.

The officers of the Association for 1921-22 were: President, Azariah S. Root, Oberlin College Library, Oberlin, Ohio; first vice-president, Samuel H. Ranck, Grand Rapids Public Library; second vice-president, Claribel R. Barnett, U. S. Department of Agriculture Library; treasurer, Edward D. Tweedell, The John Crerar Library, Chicago. The Educative Board includes in addition to the foregoing, Gratia A. Countryman, John Cotton Dana, George S. Godard, Margaret Mann, H. H. B. Meyer, Carl B. Roden, Edith Tobitt, and George B. Utley. The secretary of the association is Carl H. Milam, 78 East Washington Street, Chicago, at which address are maintained the executive offices of the Association.

LIBRARY PROGRESS. The library year 1921 was not one of salient features or remarkable

progress. There was an increasing number of library meetings throughout the country at which the most important questions before the library profession, such as revenue, certification, tariff and copyright provisions, came up for consideration. There has been a serious tendency, especially notable in New York, to curtail library appropriations, particularly book funds, which must result in crippling the facilities of public libraries in face of the constantly increasing public demand. One example was the omission from the new Federal budget of appropriations for continuing welfare work, including library service, for the army in peace times. This was partially remedied through the effort of Secretary Weeks to secure an appropriation of \$60,000 for books and service. The new budget carried satisfactory appropriations for the navy, and the merchant marine is to be cared for by a chartered organization which will be benefited by the large collection of the American Library Association. Thus was the library interest seriously affected by the aftermath of the war.

On the other hand, the year was marked by the opening of several large library buildings. Of these may be mentioned the Detroit Public Library edifice and the new quarters of the John Crerar, in the office building which it has specially constructed for library needs. Philadelphia has laid the foundations of its great public library and Wilmington (Del.) has broken ground for an important edifice. New branches have been opened in several library systems, notably two more of Cleveland's "reading factories," two additional branches for Newark (N. J.), and negro branches at Atlanta and Norfolk. College libraries have made noteworthy progress: Williams with an imposing building well advanced, Boston College, with a \$400,000 building under way, Luther College, Decorah (Iowa) with a library building just completed, and McGill University at Montreal with an important extension. The James J. Hill Reference Library building, which adjoins and supplements the St. Paul Public Library, completes the central library system in that city, and the Grosvenor Reference Library at Buffalo (N. Y.) has broken ground for a new building.

There was more library legislation than usual in 1921, as most of the States held their biennial legislative sessions in this year. The many laws passed regarding the levying of taxes for library support in the various States do not admit of much generalization. They do show, however, a disposition to permit libraries to adjust themselves to changing conditions and to provide more liberally for their support. There is an unusually large amount of Federal legislation pending, which, if enacted will affect libraries and librarians. Of these may be mentioned the Hospital Library Service appropriation bill passed by the last Congress, which includes \$100,000 for library books, magazines, and papers for beneficiaries of the War Risk Insurance and a continuation of the hospital library service inaugurated by the American Library Association; the Navy Appropriation Bill which includes \$589,500 for educational training and libraries for the navy, ashore and afloat; and the Library Information Service bill which creates a Division of Library Service in the Bureau of Education, whose duties will be to increase the efficiency of American libraries by

providing current information concerning government activities, to collect and organize information regarding printed matter issued by the Federal government and provide digests of this material.

Of library gifts there has been little of importance to record, especially as the Carnegie Corporation, after providing for more than 2500 buildings, has maintained the suspension of new library grants upon which it decided at the commencement of the war and has devoted itself in the library field chiefly to rounding up work provided for earlier. It has, however, taken up library work in foreign countries, and the Carnegie Endowment for International Peace has supplied \$200,000 for erecting and equipping a library building in Rheims, France, and \$100,000 also for books for Belgrade University. It has also added to the libraries on American history, civics, and economics in several capitals, similar collections for Strassburg and other places. The work of the American Library Association abroad has technically ceased except through the American Library in Paris, although a special appropriation provided for library service to members of the Army of Occupation, and much work has been done through American channels in the further development of libraries, especially for children in the devastated regions of France. Survey work has also been carried on by this association in the Far East and Latin-America and plans carried out for some of the library schools to give scholarships for librarians in foreign countries desiring American training.

LIBYA. An Italian colony on the north coast of Africa, comprising the two provinces of Tripolitania and Cyrenaica, lying between Tunis on the west and Egypt on the east. Area, estimated at 406,000 square miles; population, according to the census of August 3, 1911, 523,176 natives, but later estimates placed the total population at about 6,000,000. The European population numbered from 10,000 to 12,000, the majority being Maltese and Italians. The language generally spoken is Arabic, and Arabic and Italian are the official languages. The capital of Tripolitania is Tripoli with about 73,000 inhabitants; and the capital of Cyrenaica is Benghazi with about 35,000. The southern frontier is not fixed as the region extends indefinitely into the Sahara Desert. The fertile regions are those along the coast and the hill regions of Meallata, Bondara, Gebel, Tarhuna, and the valleys and oases. Trade is mainly by caravan between Benghazi and Wadai and between Tripoli and Central Sudan. According to a British authority the imports in 1919 amounted to £3,900,000. For the year 1920-21 the budget balanced at 127,196,010 lire. Governor of Tripolitania at the beginning of 1921, L. Mercatelli; of Cyrenaica, G. de Martino.

LIFE INSURANCE. See **INSURANCE.**

LIGHTHOUSES AND AIDS TO NAVIGATION. On June 30, 1921, there were maintained by the United States Lighthouse Service 16,355 aids to navigation, including 5756 lights of all classes and 593 fog signals (not including 152 buoys with whistles and 386 buoys with bells), of which 48 were submarine signals.

During the fiscal year ended on that date, there had been a net increase of only 31 in the total number of aids to navigation maintained by

the Lighthouse Service, this being the smallest increase in a number of years, due to the large number of aids discontinued. There was a decrease of 49 lights and an increase of 47 gas buoys, 5 float lights, and 28 unlighted aids.

The accompanying table gives a summary of the aids to navigation under each class established and discontinued during the fiscal year, and also the net increase and the number in commission at the end of the fiscal years 1920 and 1921:

	Class	Established	1921 Discontinued	Increase	Total, June 30— 1920 *	1921
Lighted aids:						
Lights (other than minor lights).....		36	12	24	1,836	1,860
Minor lights.....		110	† 183	† 73	3,117	3,044
Light-vessel stations.....					49	49
Gas buoys.....		74	27	47	582	629
Float lights.....		10	5	5	169	174
Total.....		230	227	3	5,753	5,756
Unlighted aids:						
Fog signals.....		12	3	9	536	545
Submarine signals.....					48	48
Whistling buoys, unlighted.....		1	3	† 2	78	76
Bell buoys, unlighted.....		10	6	5	243	248
Other buoys.....		273	277	14	7,197	7,193
Day beacons.....		102	† 82	20	2,470	2,490
Total.....		398	370	28	10,572	10,600
Grand total.....		628	597	31	16,325	16,356

* Differences from statistics published in 1920 report are due to minor discrepancies in previous count.

† Includes 98 minor lights and 18 daymarks in Missouri river, which were discontinued in 1918.

‡ Decrease.

The United States Lighthouse Service is the most extensive lighthouse organization in the world, being charged with the lighting and marking of all coasts, lakes, and navigable rivers under the jurisdiction of the United States excepting the Philippine Islands and Panama. Its responsibility covered 49,000 statute miles of coast line and river channels, and beyond the borders of the country extended to the Virgin Islands, Porto Rico, islands in the Caribbean sea, Alaska, the Hawaiian Islands, Guam, and Samoa.

In Alaska 22 additional aids (of which 11 were new lights), were established during the year, making the total there 548, of which 219 are lighted (206 lights and 13 gas buoys), but the great extent of the Alaska coasts in 1921 was quite insufficiently marked.

During the year there was completed at a cost of \$70,492.87 the new light station and buildings at Point Borinquen, the northwesterly extremity of Porto Rico. This light was increasingly important as a landfall light on the opening of the Panama Canal, and its former inefficiency and deterioration from erosion and earthquake necessitated rebuilding on a more suitable site for which Congress in 1917 appropriated \$85,000. The new location was located about 1 mile northeast of the old site on a prominent elevation on the northwest coast of the island, about 233 feet above sea level.

The new light tower was built of reinforced concrete, cylindrical in form, of simple and heavy design, well reinforced to offer maximum resistance to earthquake shocks. The concrete foundation was 25 feet square by 6 feet deep and the main tower walls 15 feet in diameter, 15 inches thick, and 46 feet high, above which was a service room and standard 8-foot helical bar lantern. A cast-iron spiral stairway led from the base to the service room. The illuminating

apparatus consisted of a third-order 12 panel flashing lens on a mercury float and a 55-millimetre type A incandescent oil vapor lamp. This lamp shows a group of four white flashes of 32,000 candlepower every 30 seconds, and is visible 24 miles.

There were also finished, complete new systems of aids to navigation for Keweenaw Waterway, Lake Superior, and for Fighting Island Channel, Detroit river, Mich., while the new plate shop

and coal shed at the general lighthouse depot on Staten Island, N. Y., were completed. Important improvements and construction were in progress at lighthouse depots at Chelsea, Mass., Galveston, Texas; Detroit, Mich., and Ketchikan, Alaska; on aids in the Hudson, St. Johns, Detroit, Mississippi, and St. Marys rivers; the eastern shore of Chesapeake Bay; and at light stations at Point Jiguero, P. R.; the Florida Reefs; Fairport and Conneaut Harbors, Ohio; Indiana Harbor, Ind.; and Point Vincente, Calif.

NEW LIGHTSHIPS. Congress by the act of March 4, 1921, appropriated \$1,000,000 for vessels for the Lighthouse Service, a part of the \$5,000,000 vessel rebuilding programme which was authorized at the previous session for replacing vessels of the Lighthouse Service which were worn out in the service, or which on account of age and deterioration will soon have to be condemned. This provision covered only a small proportion of the need for vessels in the service.

RADIO FOG SIGNAL-STATIONS. Three radio fog-signal stations, the first in the United States, were placed in commission by the Lighthouse Service on May 1, 1921. These were on Ambrose Channel Light Vessel, Fire Island Light Vessel, and at Sea Girt Lighthouse, all in the vicinity of New York Harbor. These stations were the result of experiments carried out during several years by the Bureau of Standards and the Lighthouse Service in cooperation and of the development of a practical radio compass by the former. A demonstration of the working of these stations and of the use in connection therewith of a radio compass mounted on a vessel was given on the lighthouse tender *Tulip* in the vicinity of New York on June 27 and 28, 1921. This system was designed to give to the navigator for the first time a means of taking, in a fog, or at a time of low visibility, accurate bearings of invisible

lighthouses and light vessels, which he may use in locating or steering his vessel, and he should be able to do this independently as he uses his magnetic compass for bearings on visible objects. When developed and its use extended, radio fog signals and the radio compass were believed probably to promise the greatest advance made in a long period in affording protection to vessels in fog and should be the means of avoiding some of the serious marine disasters due to inability to hear or locate a fog signal under unfavorable conditions.

There was a decrease of 80 in the number of officers and employees of the U. S. Lighthouse Service, the number at the end of the year being 5922. Incidental to their regular duties, many opportunities arise for the light keepers rendering aid to those in distress, because of the location of the light stations and vessels; during this year 119 instances of saving of life and property, or rendering valuable aid, were reported, often at great risk to the light keepers and other employees of the Service.

Provision was greatly needed for improved depot facilities in several of the districts, particularly at or near Norfolk, Va.; Key West, Fla.; Honolulu, Hawaii; and Newport, R. I.; and additional funds were needed for the completion of the important depots at Boston, Mass.; Charleston, S. C.; Detroit, Mich.; San Juan, P. R.; and Ketchikan, Alaska.

LIGHTSHIPS. See LIGHTHOUSES.

LIME. About 2,531,000 short tons of lime, valued at \$24,536,000, were sold in the United States, including Hawaii and Porto Rico, in 1921, according to an estimate made by the United States Geological Survey, from reports made by the principal producers. This quantity was less than that sold in any year since the Survey had collected its statistics and was 29 per cent less than that sold in 1920. The average value per ton in 1921 was estimated at \$9.69. In 1920 it was \$10.52, and in 1919 it was \$8.84. Of the 42 States and Territories that produced lime in 1921, 5 increased and 27 decreased their output as compared with 1920. The five States that increased their output in 1921 made only small gains and were affected by local or special conditions, such as contracts made late in 1920. Reports showed that fewer plants were in operation in 1921 than in 1920, and some firms that intended to start work either abandoned their intentions or held them in abeyance. Many small kilns on farms were not operated on account of the high price of coal. Firms that actively operated plants for many years closed them down in 1921, because they could see no profit in the business. A few new plants were put in operation, although many of the old ones were active during only a part of the year. There was less complaint of shortage of labor in 1921 than for several years past. The high price of coal was still a drawback to the industry, but the cost of production was generally reported to be less than in 1920. High freight rates affected the production of lime to a great extent by closing markets to firms whose output could not all be taken in the local market and by raising the gross price so high that the potential consumer could not afford to pay it. The lime market was very poor and irregular until fall, when the demand apparently increased but was still below normal. Prices were unstable during the year, but on the whole decreased throughout the country. In one locality

the average price of quicklime per ton from January to June was \$9.80 and from July through November, \$7.30. The average price of hydrated lime per ton in the same locality was reported at \$12.30 from January to June and \$9.80 from July through November.

LINCOLN, MRS. MARY JOHNSON (BAILEY). Household economist, died at Boston, Mass., December 2. Her cook books and kitchen textbooks are well known. She was born at South Attleboro, Mass., July 8, 1844; graduated at the Wheaton Seminary, Mass., in 1864; and after 1879 was a writer and lecturer on household science. She was the first principal of the Boston Cooking School from 1879 to 1885, and an editor of the *American Kitchen Magazine* from 1890 to 1903; and she lectured on cookery and kindred subjects throughout the United States. She wrote: *Boston Cook Book* (1884); *Peerless Cook Book* (1886); *Carving and Serving* (1886); *The Boston School Kitchen Text Book* (1888); *What to Have For Luncheon* (1904); *School Kitchen Text Book* (1915).

LINDLEY, LORD (NATHANIEL LINDLEY). British jurist, died at Norwich, Eng., December 9. He was born, Nov. 29, 1828, and called to the bar in November, 1850. In 1875 he was made Justice of the Common Pleas; in 1881 Lord Justice; in 1897, Master of the Rolls, and in 1900 Lord of Appeal in Ordinary with a life peerage under the title of Baron Lindley of East Carlton. By many he was ranked among the greatest judges of the Victorian Age. He was one of the few who were ever promoted from the Chancery Bar to the Common Law bench and he was the last of the Sergeants-at-Law. Early in his career he wrote two important legal works, *An Introduction to the Study of Jurisprudence* and a great work on *Partnership*, which passed through many editions.

LINGUISTIC SCIENCE. See PHILOLOGY. Modern.

LIPPMANN, GABRIEL. See NECROLOGY.

LIQUORS. Attorney-General Palmer on February 2 decided that the authority of the commissioner of internal revenue to issue permits for the sale in wholesale quantities of intoxicating liquors was limited to manufacturers and wholesale druggists. On March 3 the Attorney-General decided that the internal revenue bureau had no authority to limit the number of permits for the manufacture and sale of liquors for medicinal purposes, except that it must be confined to reputable druggists. The United States Supreme Court in its decision of June 1 held that the former internal revenue laws were supplanted by the Volstead Act, and that the penalties under those laws could not be applied in addition to the penalties provided in the Volstead Act.

The figures showing the cost and financial results of the enforcement of national prohibition during the fiscal year were published in October, based on the records of Washington. The cost to the country during the fiscal year according to this was \$6,250,095. The assessments imposed involving civil penalties and special taxes amounted to \$53,296,999, and of this \$2,152,387 had been collected. Besides this, property had been seized valued at \$10,906,687, and the court fines imposed would run, according to the estimates, up to several millions. The chief items in the cost of enforcement were salaries and traveling costs. The criminal cases involving violation of the law numbered 29,114 and in these 16,610 of

the accused pleaded guilty; 17,962 were convicted; and 765 were acquitted. The percentage of convictions was much lower in New York City than elsewhere. At the end of the fiscal year 10,365 cases for violation of the law were still pending. On June 30, 1921, there were 39,961,000 gallons of whisky, 399,000 gallons of rum, 885,000 gallons of gin, 2170 gallons of high wines, 640,946 gallons of alcohol, 369,000 gallons of neutral or cologne spirits, making a total of 42,500,000 gallons in the distilleries and general bond warehouses. In the fiscal year 1920, there were about 53,000,000 gallons.

The national prohibition act of Oct. 28, 1919, imposed duties upon the Bureau of Internal Revenue which were new to it, and from the effective date of the act a considerable portion of its energies had to be devoted to the enforcement of a regulatory act instead of to a tax-collecting act. In this work the bureau no doubt made mistakes. The act was in some instances misinterpreted and the means taken to enforce it were not always effective. In the fiscal year ending June 30, 1921, however, there was considerable improvement. Many of the earlier mistakes of the bureau were corrected. The regulations were amended, the act received judicial interpretation in the courts, and many points were cleared up by opinions of the Attorney General. The prohibition field organization was continued under the general scheme of organization planned in 1920. It was composed of two classes of supervisory officers, known as supervising Federal prohibition agents and Federal prohibition directors, each supervisory officer having a force of employees operating under his immediate control. Each supervising agent was in charge of an administrative unit known as a "department," the various departments being composed of from one to five States. The duty of the supervising Federal prohibition agent was to detect and suppress violations of the prohibition law and to prosecute violators. Each supervising agent controlled a mobile force known as Federal prohibition agents. On June 30, 1921, there were 12 regular departments in the United States, and in addition two acting supervising Federal prohibition agents, one for Hawaii and one for Porto Rico. The permissive features of the national prohibition act were administered by Federal prohibition directors, there being one such officer for each State, one for Hawaii, and one for Porto Rico. The subordinate field officers were known as Federal prohibition inspectors.

The prevention of the smuggling of liquors by the Customs Service without adequate force or equipment to cope with the organized bands of liquor smugglers, especially along the south Atlantic seaboard, continued to present a serious problem. Despite the large number of seizures made by customs officers of contraband liquor and of vessels carrying the same, no material decrease in violations of this character was to be expected according to the Customs House authorities until sufficient funds were made available for the maintenance of an effective border and seacoast patrol and for an adequate number of men to make a thorough search of vessels promptly upon their arrival from foreign shores.

In the fiscal year ending June 30, 1920, the classes and value of liquors seized were as follows: Illicit stills, 14,337; distilled spirits, 109,370 gals.;

wine, 44,365 gals.; total value, \$2,390,638. In North and South Carolina, Kentucky, Tennessee, and Virginia, 5328 moonshine arrests were made during the calendar year 1920.

LITERATURE. ENGLISH AND AMERICAN. To grow enthusiastic over the literary output of the year 1921 is difficult. While literary production has not been decreased in quantity, it would seem, with some striking exceptions, to have decreased in quality. In fiction, for instance, a vast number of works have been produced, but most of them are not significant. Certainly, as regards fiction, the output of 1921 cannot compare in quality with that of 1920. Perhaps some of the seeming barrenness of that particular field is due to the absence from it of its long-established chief workers, such men as Wells, Conrad, Bennett, whose attention was this year turned elsewhere. Their would-be successors do not seem to take up the burden. In Poetry and Drama, also, the yield has been thin, lacking distinction.

However, there is cause for rejoicing in the generally successful activity displayed by biographers, essayists, and writers upon political and sociological subjects. It would seem, for the year 1921, that what the English-speaking world has lost in artistry, it has made up in thoughtfulness. To say that this thoughtfulness is a result of the war is to say the usual, and perhaps true, thing. But to say that is a product of the peace would be even truer of the literary activity of the year. Skepticism in essay and biography and a careful logic in the approaches to reconstruction problems in political science and sociology would indicate the nations' disillusionment. The war itself gets a decreasing amount of attention, even in its controversial phases. In Fiction and Poetry, certainly, it has almost disappeared, either as background, or as a *deus ex machina*.

Production in the fields of Philosophy, Religion, the Fine Arts, History, was as in other years. Travel books have been very numerous and very good, generally.

FICTION. The noteworthy and successful fiction for the year is remarkable for the almost complete unanimity with which it has turned to character as the source of inspiration. One author after another has endeavored to make plain and real a man or woman whose quality might otherwise escape us. And the number of times authors have succeeded and found popular favor during 1921 indicates that man's curiosity about man is still unappeased. This effort in the portrayal of character has been made among authors on both sides of the Atlantic. It must be confessed, however, that this year the honors for success cannot be so definitely awarded to Americans as last year. The English supremacy, long-held, is again asserted.

Of course, other themes than the study of character abound. There are the usual number of stories concerned with the relations of the sexes, triangle stories, marriage stories, love stories, and so on. The spiritualistic motif is also present occasionally. The historical novel has practically disappeared. Mystery, adventure, and detective stories hold their large audiences and are published by scores.

Certain novels demand more than mere mention. *If Winter Comes*, by A. S. M. Hutchinson, concerns a character whose charm many will long remember. In *Mr. Waddington of Wyck*, May



D. Appleton & Co.

EDITH WHARTON



SINCLAIR LEWIS
Author of *Main Street*



Boni & Liveright

EUGENE O'NEILL
American Playwright



ZONA GALE

FOUR AUTHORS PROMINENT IN 1921

Sinclair humorously demolishes a humorless egoist. In *Alice Adams*, Booth Tarkington gives us an honest yet sympathetic story of a girl who finds her soul in the ruins of her family's social position. Sheila Kaye-Smith, in *Green Apple Harvest*, shows a man's life torn in the struggle between religion and romance, an appealing tragedy. Hugh Walpole's *The Young Enchanted* gives us, pleasantly and movingly, the lives of two young people after the war. In *Heloise and Abelard*, George Moore re-tells the old story, with inimitable decorations of his own. *Three Soldiers*, by John Dos Passos, describing the careers of three men in the American army overseas, is probably the book of the year over which the most controversy has raged, and is almost the only important war novel. John Galsworthy continues his campaign against the over-emphasis of the acquisitive instinct, as exemplified by the Forsytes, in *To Let*. Both Dorothy Canfield, in *The Brimming Cup*, and Charles G. Norris, in *Brass*, discuss the problems of marriage, and arrive at quite opposite conclusions. Frank Swinnerton, in *Coquette*, and W. L. George, in *Ursula Trent*, have skillfully portrayed the girl who preys on men. *Madam*, by Ethel Sidgwick, contains some sharp characterization.

Other important novels of the year are: Compton Mackenzie's *Rich Relatives*; H. G. Aikman's *Zell*; Floyd Dell's second story of the Moon-Calf, *The Briary Bush*; Dorothy Richardson's *Deadlock*, more about Miriam Henderson; Ernest Poole's *Beggar's Gold*; Archibald Marshall's *The Hall and the Grange*; William J. Locke's *The Mountebank*; Mr. and Mrs. Haldeman-Julius's *Dust*; Sir Harry Johnston's story of Africa, *The Man Who Did the Right Thing*; James Branch Cabell's *Figures of Earth*; Elsie Singmaster's *Ellen Lewis*; D. H. Lawrence's *Women in Love*; E. F. Benson's *Dodo Wonders and Lovers and Friends*; Fannie Hurst's *Star-Dust*; William Dudley Pelley's *The Fog*; Stephen McKenna's *The Secret Victory* and *The Education of Eric Lane*; J. D. Beresford's *Revolution*; Owen Johnson's *The Wasted Generation*; Rose Macaulay's *Dangerous Ages*; Edna Ferber's *The Girls*; Robert Nathan's *Autumn*; and Samuel Hopkins Adams' *Success*.

Mention must also be made of: the curious *Memoirs of a Midget*, by Walter de la Mare; a thrilling mystery tale, *The Grey Room*, by Eden Phillpotts; *Real Life*, about the movies, by Henry Kitchell Webster; *Mrs. Farrell*, William Dean Howell's last novel; *Blind Mice*, by C. Kay Scott; *The Spirit of the Time*, by Robert Hichens; *The Seeds of Enchantment*, by Gilbert Frankau; *Shepherd's Warning*, by Eric Leadbitter; *Debatable Ground*, by G. B. Stern; H. Rider Haggard's *She and Allan*; Alfred Ollivant's *One Woman*; *The Green Bough*, by E. Temple Thurston; *An Enthusiast*, by E. C. Somerville; *The Pilgrim of a Smile* and *The Guinea Girl*, by Norman Davey; *Three Loving Ladies*, by Mrs. Dowdall; *The Path of the King*, by John Buchan; *Latchkey Ladies*, by M. Grant; *The Bright Messenger*, by Algernon Blackwood; *Adrienne Toner*, by Anne Douglas Sedgwick; *The Seventh Angel*, by Alexander Black; *The Narrow House*, by Evelyn Scott; *Beauty and Mary Blair*, by Ethel M. Kelley; *The Happy Foreigner*, by Enid Bagnold; *World Without End*, by Grant Overton; *Humbug*, by E. M. Delafield; *The Tower of Oblivion*, by Oliver Onions; and *Orphan Dinah*, by Eden Phillpotts.

Almost the only historical novels of the year are:

Rafael Sabatini's story of the French Revolution, *Scaramouche*; Edward Lucas White's *Andrius Hedulio*; Donn Byrne's *Messer Marco Polo*; and Eden Phillpotts' *Eudocia*. Noteworthy adventure stories include: *When Egypt Went Broke*, by Holman Day; *Jacob's Ladder*, by E. Phillips Oppenheim; *Martin Conisby's Vengeance*, by Jeffrey Farnol; and *Satan*, by H. de Vere Stacpoole. Among the mystery stories are: *The Crooked House*, by Brandon Fleming; *The Chestermarke Instinct* and *The Herapath Property*, by J. S. Fletcher; *Beauty*, by Rupert Hughes; and *Crome Yellow*, by Aldous Huxley.

Many have been pleased by *The Journal of Henry Bulver*, by C. Veheyne; *Our Little Life*, by J. G. Sione; *Spring Shall Plant*, by Beatrice Harraden; *Daughter of the Sun*, by Quien Sabe; Gouverneur Morris' burlesque adventure story, *Yellow Men and Gold*; Dana Burnet's *The Lark*; *Antonia*, by Viola Meynell; *Angelica*, by Elizabeth Sanxay Holding, who also publishes *Rosealeen among the Artists*; *The Empty Sack*, by Basil King; *Gold Shod*, by Newton Fuesale; two impressionistically written first novels, *The Beginning of Wisdom*, by Stephen Vincent Benét, and *Erik Dorn*, by Ben Hecht; *The Master of Man*, by Sir Hall Caine; *Sister Sue*, by Eleanor H. Porter; *Vera*, by "Elizabeth"; *Privilege*, by Michael Sadleir; *The Dizons*, by Florence F. Kelley; *Elinor Colhouse*, by Stephen Hudson; *Way of Revelation*, by Wilfrid Ewart; *Gods*, by Shaw Desmond; *Helen of the Old House*, by Harold Bell Wright; *Manslaughter*, by Alice Duer Miller; *Roads Going South*, by Robert T. Duffus; *Harlequin and Colombine*, a novelette by Booth Tarkington; *Torchlight*, by Leonie Aminoff; *March On*, by George Madden Martin; *Enter Jerry*, by Edwin Meade Robinson; *Madame Margot*, by John Bennett; *The Blood of the Conquerors*, by Harvey Fergusson; and *Forward from Babylon*, by Louis Golding.

Among the volumes of short stories are: *The Trembling of a Leaf*, by W. Somerset Maugham; *Wild Justice*, by Lloyd Osborne; *Original Sinners*, by H. W. Nevinson; *Venetian Lovers*, by Sir Philip Gibbs; *The Thirteen Travellers*, by Hugh Walpole; *Carter and Other People*, by Don Marquis; *More Limehouse Nights*, by Thomas Burke; *Tales From a Roll-Top Desk*, by Christopher Morley; *Thirteen All Told*, by Beatrice Harraden; *Winnie O'Wynn and the Wolves*, by Bertram Atkey; *I Have Only Myself to Blame*, by the Princess Bibesco, Margot Asquith's daughter; *The Golden Windmill*, and *Other Stories*, by Stacy Aumonier; *Ghita*, and *Other Romances of Gypsy Blood*, by Konrad Bercovici; *The Triumph of the Egg*, by Sherwood Anderson; *Bliss and Other Stories*, by Katharine Mansfield; Richard Washburn Child's *Velvet Black*, and translations of Pierre Hamp's *People* and Anton Chekhov's *The Schoolmistress and Other Stories*, and *Horse Stealers and Other Stories*.

POETRY. Critics for several years have been saying of contemporary poetry, "There is promise here." And though the promise is still unfulfilled, a survey of the year 1921 shows the promise still there. There is searching for new forms, new material, new thoughts and emotions, which must sometime find its goal, and give us the long-promised new gospel of beauty. Among the significant volumes of the year are: Anne Wickham's most interesting study of woman in her

relations with man, *The Contemplative Quarry*; E. Powys Mathers' second volume of Asiatic love songs, *The Garden of Bright Waters*; Amy Lowell's *Legends*; Edna St. Vincent Millay's *Second April*; Wilfred Owen's *Poems*; the remarkable parody, *Q. Horatii Flacci Carminum Librum Quintum*, by Rudyard Kipling and Charles Graves; Edwin Arlington Robinson's *Avon's Harvest and Collected Poems*; Walter de la Mare's *The Veil*; Conrad Aiken's *Punch, the Immortal Liar*; Leonora Speyer's delicate *The Canopic Jar*; John Masefield's *King Cole*; John Freeman's *Poems New and Old*; Mark Tarbyfil's *The Living Frieze*; Sir William Watson's *Ireland Unfreed*; W. H. Davies' *The Captive Lion*; Alfred Noyes' *Selected Verse*; John Drinkwater's *Seeds of Time*; Robert Louis Stevenson's *Moral Emblems*, collected for the first time by his stepson, Lloyd Osborne; *The Pier Glass*, by Robert Graves, who, with others, edits *Oxford Poetry, 1921*; Percy MacKaye's *Dogtown Common*; J. C. Squire's *Poems, Second Series*; John V. A. Weaver's *In America*; *The Open Sea*, by Edgar Lee Masters; *Hymen*, by H. D.; D. H. Lawrence's *Tortoises*; Stephen Vincent Benét's *Heavens and Earth*; Laura Benét's *Fairy Bread*; Jean Starr Untermeyer's *Dreams out of Darkness*; Keith Preston's *Splinters*; Aline Kilmer's *Vigils*; Lola Ridge's *Sun-up and Other Poems*; Alice Corbin's *Red Earth*; the anonymous *Sonnets of Shakespeare's Ghost*; Hugh MacRae's *Colombine*; Bernard Gilbert's *Old England*; Mary Gilmore's *The Passionate Heart*; Roderick Quinn's *Poems*; Edward Shanks' *The Island of Youth*; James Oppenheim's *The Mystic Warrior*; F. W. H. Myers' *Collected Poems*; Douglas Goldring's *Streets*; Christopher Morley's *Chimneysmoke*; Charlotte Mew's *Saturday Market*; and last but not least, Don Marquis's *Noah an' Jonah an' Cap'n John Smith*.

DRAMA. The vast majority of publications in the field of the drama for the year 1921 are individual plays. Both collections and commentaries are scarce. There is noticeable, however, a new interest in the one-act play, several of which are even published in separate volumes. Noteworthy among the plays of the year are: *Miss Lulu Bell*, by Zona Gale, which won the Pulitzer prize for 1920; *The White-Headed Boy*, by Lennox Robinson; *The Straw, The Emperor Jones, Different*, by Eugene O'Neill; *The Comedies of Harold Chapin*; *Enter Madame*, by Gilda Varese; *Angels and Ministers*, by Lawrence Housman; *The Circle*, by W. Somerset Maugham; *Swords*, by Sidney Howard; *Clair de Lune*, by Michael Strange; *Will Shakespeare*, by Clemence Dane; *The Cockpit*, by Israel Zangwill; *The Harp of Life*, by J. Hartley Manners; *The Story of the Mikado*, by W. S. Gilbert, the light opera in straight form; *The Lamp and the Bell*, by Edna St. Vincent Millay; *Gruach, and Britain's Daughter*, by Gordon Bottomley, who also publishes *King Lear's Wife and Other Plays*; *The Pilgrim Spirit, a Pageant in Celebration of the Tercentenary of the Landing of the Pilgrims*, by George Pierce Baker; *Liliom*, by Franz Molnar, translated by Benjamin F. Glazer; *Wade's Boat*, by E. H. W. Meyerstein; *Oliver Cromwell and Mary Stuart*, by John Drinkwater; and *Caius Gracchus*, by Odin Gregory.

Of significant one-act plays there are *Aria da Capo*, and *Two Slaterns and a King*, by Edna St. Vincent Millay; *Six Short Plays*, by John Galsworthy; *Four Plays for Dancers*, by W. B.

Yeats; *One-Act Plays* by Alice Brown; *Ten One-Act Plays*, by Alice Gerstenburg, and *Four One-Act Plays*, by Lewis Beach. Of collections and commentaries there are: *Chief Contemporary Dramatists, Second Series*, edited by Thomas H. Dickinson; *Representative Plays by American Dramatists*, edited by Montrose J. Moses; *Representative One-Act Plays by British and Irish Authors*, edited by Barrett H. Clark; *A Short History of the English Drama*, by Benjamin Brawley; and *Modern Drama in Europe*, by Storm Jameson.

ESSAYS. Noteworthy among the more important essays of the year are: *Things That Have Interested Me*, by Arnold Bennet; *The Circus and Other Essays*, a posthumous work of Joyce Kilmer; *Urbanities*, by E. V. Lucas; *The Margin of Hesitation*, by Frank Moore Colby; *Impressions and Comments, Second Series*, by Havelock Ellis; *The Book of Life*, by Upton Sinclair; *The Dame School of Experience*, Samuel McChord Crothers; *Plum Pudding*, by Christopher Morley; *From a Gaelic Outpost*, by Aodh de Blácam; *I Have Reason to Believe*, by Stephen Paget; *The Second Person Singular*, by Alice Meynell; *Legends of Smokeover*, by L. P. Jacks; *Small Talk at Weyland*, by Cecil Torr; *Music and Life*, by W. J. Turner; *A Traveller in Little Things*, and *A Shepherd's Life*, by W. H. Hudson; *More About Unknown London*, by W. G. Bell; *The Man in the Street*, by Meredith Nicholson; *Turns About Town*, by Robert Cortes Holliday; *The Tiger in the House*, by Carl van Vechten; *Seeing Things at Night*, by Heywood Broun; *Grain and Chaff from an English Manor*, by Arthur H. Savory. Other significant essays of the year that must be listed are: *More Trivia*, by Pearsall Smith; *A Parody Outline of History*, by Donald Ogden Stewart; *America and the Young Intellectual*, by Harold Stearns; the posthumous *Variations*, by James Gibbons Huneker; *Essays in Freedom and Rebellion*, by H. W. Nevins; *An Ocean Tramp, and Harbors of Memory*, by William McFee; *The Old Soak, and Hail and Farewell* by Don Marquis; *Hints to Pilgrims*, by Charles S. Brooks; *Hail Columbia*, by W. L. George; *Thus to Revise*, by Ford Madox Hueffer; *A Magnificent Farce*, by A. Edward Newton; *Essays and Addresses*, by Gilbert Murray; *Novissima Verba*, by Frederic Harrison; *The Sunny Side*, by A. A. Milne; *Light Articles Only*, by A. P. Herbert; *Tired Radicals and Other Papers*, by Walter Weyl; *The Greek Character*, by A. K. Thompson.

CRITICISM AND THE HISTORY OF LITERATURE. Among the considerable number of the year's works on literary criticism the following are significant: *Notes on Men and Books*, and *Notes on Life and Letters*, by Joseph Conrad; *Notes and Reviews*, by Henry James; *Essays on English*, by Brander Matthews; *Books on the Table*, by Edmund Gosse; *The American Novel*, by Carl Van Doren; *Some Modern French Writers*, by G. Tourquet-Milnes; *Studies in Modern Poetry*, by Frederico Olivero; *More Essays on Books*, by A. Clutton-Brock; *The John Keats Memorial Volume; Euripides and Bernard Shaw*, by Gilbert Norwood; *Essays on Modern Dramatists*, by William Lyon Phelps; *Collected Essays*, by George E. Woodberry; *Life and Letters*, by J. C. Squire; *The Portrait of Mr. W. H.*, a recently discovered manuscript of Oscar Wilde's; *Adventures in the Arts*, by Marsden Hartley; *The Formation of*

Tennyson's Style, by J. F. A. Pyre; *Molière*, by Arthur Tilley; *A New England Group and Others*, by Paul Elmer More; Volumes 3 and 4 of *A Survey of English Literature*, by Oliver Elton.

Other notable books of literary criticism are: *The Invisible Censor*, by Francis Hackett; *The Theatre, the Drama, the Girls*, by George Jean Nathan; *Pastiche and Prejudice*, by A. B. Walkeley; *Reviews and Critical Papers*, by Lionel Johnson; *Literature and Life*, by E. B. Osborn; *Miscellanies, Literary and Historical*, by Lord Rosebery; *The Cambridge History of American Literature*, parts II and III, edited by W. P. Trent and others.

BIOGRAPHY AND AUTOBIOGRAPHY. Among the important biographical contributions of the year are: *Queen Victoria*, by Lytton Strachey; *Portraits of the 'Nineties*, by E. T. Raymond; *From Private to Field Marshal*, by Sir William Robertson; *Forty-odd Years in the Literary Shop*, by James L. Ford; *Silhouettes of my Contemporaries*, by Lyman Abbott; *The Mirrors of Washington*, anon.; *The Truth About Burns*, by D. MacNaught; *Matthew Maris*, by Ernest D. Findlander; *Saint Sæns*, by Arthur Hervey; *Through the Shadows With O. Henry*, by Al Jennings; *Letters and Journals of Thomas Wentworth Higginson*, edited by Mary Thacher Higginson; *A Young Girl's Diary*, with an introduction by Sigmund Freud; *The Life of Robert, Marquis of Salisbury*, by his daughter, Lady Gwendolen Cecil; *News Hunting on Three Continents*, by Julius Chambers; *Other Days*, by J. W. Leigh; *Chapters From Childhood*, by Juliet M. Soekice; *Edwin Austin Abbey, R. A.*, by E. V. Lucas; *Max Beerbohm in Perspective*, by Bohun Lynch; *Life of the First Marquess of Ripon*, by Lucien Wolf; *Pillars of the State*, by Herbert Sidebotham; *Modern Men and Mummies*, by Hesketh Pearson; *The Home Life of Swinburne*, by Mrs. Watts-Dunton; *Memories and Notes*, by Sidney Colvin; *While I Remember*, by Stephen McKenna; *J. Keir Hardie*, by William Stewart; *Princes of the Church*, by W. Robertson Nicoll; *Herman Melville*, by R. M. Weaver; *Letters To Isabel*, by Lord Shaw of Dumferline; *Queen Alexandra*, by W. R. H. Trowbridge; *A Daughter of the Middle Border*, by Hamlin Garland; *Fifty Years a Journalist*, by Melville E. Stone; *Daniel H. Burnham*, by Charles Moore; *Ernest Renan*, by Lewis Freeman Mott; *The Life of Whitelaw Reid*, by Royal Cortissoz; *Hugh Lane's Life and Achievement*, by Lady Gregory; *A Salem Shipmaster*; the autobiography of George Nichols; *Cecil Rhodes*, by Basil Williams; *Marcus Aurelius*, by Henry Dwight Sedgwick; *Recollections of a Foreign Minister*, by Alexander Iswolsky; *The Life of Joseph Hodges Choate*, by Edward S. Martin; *The Men of the 'Nineties*, by Bernard Muddiman; *Victorian Worthies*, by G. H. Blore; *Crowding Memories*, by Mrs. Thomas Bailey Aldrich; *Contemporary Portraits*, by Frank Harris; *David Urquhart*, by Gertrude Robinson; *Mayfair to Moscow*, by Claire Sheridan; *The Whistler Journal*, by E. R. and J. Pennell; *A Gallant of Lorraine*, by H. Noel Williams; *Paul Gauguin, His Life and Art*, by John Gould Fletcher; *Memories of Ismail Kemal Bey*, by Summerville Story; *My Brother, Theodore Roosevelt*, by Corinne Roosevelt Robinson; *My Life Here and There*, by Princess Cantacuzene; *Life and Times of Ambroise Paré*, by Francis R. Packard; *The Big Four and Others of the Peace Conference*, by Robert Lansing; *Asarte, a Fragment of Truth Concerning*

George Gordon Byron, sixth Lord Byron, by his grandson, Earl of Lovelace and Mary, Countess of Lovelace; *Washington Close-up*, by Edward S. Lowry; *Political Profiles from British Public Life*, by H. Sidebotham; *The Intimate Life of Sir Walter Scott*, by Archibald Stalker; *My Years of Exile*, by Edward Bernstein; *Michaelangelo Buonarrotti*, by George Brandes; *Paul Verlaine*, by Harold Nicholson; *Famous Chemists*, by Sir William A. Tilden; *Life of Alfred Newton*, by A. F. R. Wollaston.

THE FINE ARTS. The following are significant among the books on the Fine Arts: G. Baldwin Brown's *The Arts in Early England*; volume 4 of James Ward's *History and Methods of Modern Painting: Masterpieces of Modern Art*; edited by Charles Marriot; *How France Built Her Cathedrals*, by Elizabeth Boyle O'Reilly; *A Survey*, fifty caricatures by Max Beerbohm; *British Water Color Painting of Today*, edited by Geoffrey Holme; Walter Pach's translation of volume 1, *Ancient Art, of History of Art*, by Elie Faure; *Early American Portrait Painters in Miniature*, by Theodore Bolton; *Twenty-Four Portraits*, by William Rothenstein; *Sketches and Designs by Stanford White*, edited by Laurence Grant White; *English Interiors*, by Arthur Stratton; and *The Court Painters of the Grand Moguls*, by Laurence Binyon.

PHILOSOPHY AND RELIGION. In these fields the striking thing has been the concern with practical affairs from the philosophic or religious point of view. A book which has been extensively commented upon, and which would seem to contain ideas of lasting value, is Alfred Korzybski's *The Manhood of Humanity*, translated from the Polish. Other philosophical and religious books are: *A Defence of Philosophic Doubt*, by Arthur James Balfour; *Essays in Critical Realism*, by Durant Drake and others; *A Study in Realism*, by John Laird; Herbert S. Langfeld's *The Aesthetic Attitude*; Stewart Paton's *Human Behaviour in Relation to the Study of Educational, Social, and Ethical Problems*; Bertrand Russell's *The Analysis of Mind*; J. M. Keynes' *Treatise on Probability*; Jay William Hudson's *The Truths we Live By*; J. S. Haldane's *Mechanism, Life, and Personality*; Bernard Bosanquet's *The Meeting of Extremes in Contemporary Philosophy*; Willard L. Sperry's *The Disciplines of Liberty*; Arthur George Heath's *The Moral and Social Significance of the Conception of Personality*; James Harvey Robinson's *The Mind in the Making*; Everett Dean Martin's *The Behavior of Crowds; The Religions of Mankind*, by E. D. Soper; *The Pilgrim*, by T. R. Glover; *Stones of Stumbling*, by A. I. Tillyard; *Hellenism and Christianity*, by Edwym Bevan; *The Philosophy of Mysticism*, by Edward Ingram Watkin; *The Essentials of Mysticism*, by Evelyn Underhill; *The Book of Job*, by Morris Jastrow; *The Power of Prayer*, edited by W. P. Paterson; *The Life, Indeed*, by J. F. Genung.

SOCIOLOGY AND EDUCATION. The following are the most important works that appeared in 1921, dealing with sociology and education: *Our Social Heritage*, by Graham Wallas; *An Introduction to the Psychological Problems of Industry*, by Frank Watts; *Freedom of Speech*, by Zechariah Chaffee; *The Eugenic Prospect*, by C. W. Saleeby; *The Jew and American Ideals*, by John Spargo; *The Voice of Jerusalem*, by Israel Zangwill; *A History of British Socialism*, Volume II, by M. Beer; *Man's Unconscious*

Passion, by Wilfrid Hay; *Old World Traits Transplanted*, by R. E. Park and Herbert A. Miller; *A Stake in the Land*, by Peter A. Speck; *Taboo and Genetics*, by M. M. Knight and others; *National Welfare and National Decay and Is America Safe for Democracy?* by William MacDougall; *The Origin of Man and of His Superstitions*, by Carveth Read; *Revolution and Democracy*, by Frederick C. Howe; *The Evolution of Revolution*, by H. M. Hyndman; *The Backward Peoples and Our Relations with Them*, by Sir Harry Johnston; *Human Engineering*, by Eugene Wera; *Freedom and Liberty*, by William Bennett; *The Glass of Fashion*, by "The Gentleman with a Duster"; *Labour as an International Problem*, edited by E. John Solano; *The Problem of Americanization*, by Peter Roberts; *The Trend of the Race*, by S. J. Holmes. To these must be added as significant in their field: *Man's Descent From the Gods, or, The Complete Case Against Prohibition*, by Anthony M. Ludovici; *The New Horizon in Love and Life*, by Mrs. Havelock Ellis; *The Control of Life*, by Arthur Thompson; *A Social History of the American Negro*, by Benjamin Brawley; *Vice and Health*, by John Clarence Funk; *The Acquisitive Society*, by R. H. Tawney; *The Influence of Puritanism*, by John S. Flynn; *Scholarship and Service*, by Nicholas Murray Butler; *Edward Yeoman's Shackled Youth*; J. A. H. Keith and W. C. Bagley's *The Nation and the Schools*; and Cambridge *Essays on Adult Education*, by R. St. J. Parry.

POLITICAL SCIENCE AND ECONOMICS. The interests of politics to-day lie largely in the field of international relations, which is reflected in the year's publications. Especially noteworthy is the attention paid the East. The more significant of the year's works on the political science and economics are the following: *The Fruits of Victory*, by Norman Angell; *Modern Democracies*, by Viscount Bryce; *The Salvaging of Civilization, and Russia in the Shadows*, by H. G. Wells; *Japan and the California Problem*, by Toyotishi Iyenaga and K. Sato; *What We Want and Where We Are*, by W. A. Appleton; *The Sudan in Evolution*, by Percy F. Martin; *The Hope of Europe*, by Sir Philip Gibbs; *The Struggle for Power in Europe in 1917-1921*, by L. Haden Guest; *Labour, the Giant With Feet of Clay*, by Shaw Desmond; *Great Men and Great Days*, by Stephen Lausanne; *History of the Peace Conference at Paris*, volumes IV and V, edited by H. V. Temperley; *The New World; Problems in Political Geography*, by Isaiah Bowman; *The Defence of Terrorism*, by L. Trotaky; *Europe—Whither Bound?* by Stephen Graham; *The Truth About China and Japan*, by Putnam Weale; *The English Prison System*, by Sir Evelyn Ruggles-Brise; *War and National Finance*, by R. H. Bland; *The New World of Islam*, by Lothrop Stoddard; *The Government and Politics of France*, by Edward McChesney Lait; *America and the Race for World Dominion*, by A. Demangeon; *China, Captive or Free*, by Gilbert Reid; *What Japan Wants*, by Yoshi S. Kuno; *Sea Power in the Pacific*, by H. C. Bywater; *The Foundations of Government*, by H. J. Laski; *The Press and Politics in Japan*, by Kisaburo Kawabe; *While Europe Waits for Peace*, by Pierrepont B. Noyes; *The Economics of Communism*, by Leo Pasvolaky; *The Russian Workers' Republic*, by H. N. Brailsford; *New Masters of the Baltic*, by Arthur Ruhl; *Credit-Power and Democracy*, by C. H. Douglas

and A. R. Orage; *Must We Fight Japan?* by Walter B. Pitkin; *The Crisis in Russia*, by Arthur Ransome; *The Next War*, by Will Irwin; *China, Japan and Korea*, by J. O. P. Bland; *The Case of Korea*, by Henry Chung; *The Irish Labor Movement*, by W. P. Ryan; *Balkanized Europe*, by Paul Scott Mowrer; *The Problem of Foreign Policy*, by Gilbert Murray; *What Shall we Think of Japan?* by George Gleason. The following books of the year on political science are also worthy of mention: *The New Japanese Peril*, by Sidney Osborne; *The Voice of Russia*, by Alexander Schwarz; *The Folly of Nations*, by Frederic Palmer; *Mexico on the Verge*, by E. J. Dillon; *The Foreign Relations of China*, by Ming-Chien Joshua Bau; *Democracy and the Human Equation*, by Alleyen Ireland; *Risk, Uncertainty and Profit*, by Frank H. Knight; *Zionism and World Politics*, by H. M. Kallen.

HISTORY. Among the year's books on general history, the following are noteworthy: *What Really Happened at Paris*, edited by E. M. House and Charles Seymour; *The Truth About the Treaty*, by André Tardieu; *Spain's Declining Power in South America*, by Bernard Moses; *The Peace Negotiations*, by Robert Lansing; *Twenty Years of Balkan Tangle*, by Edith Dunham; *The Russian Bolshevik Revolution*, by Edward A. Ross; *A Constitutional History of England*, by George Burton Adams; *Outlines of Historical Jurisprudence*, Volume I, by Sir Paul Vinogradoff; *The Evolution of Parliament*, by A. I. Pollard; *The Eighteenth Century in London*, by Beresford Chancellor; *The New Stone Age in Northern Europe*, by John M. Tyler; *Thought and Expression in the Sixteenth Century*, by Henry Osborne Taylor; *England in Transition, 1789-1832*, by William Law Mathieson; *The Age of Reformation*, by Preserved Smith; *A Short Fiscal and Financial History of England*, by J. F. Rees; *The Manchester Guardian*, by William Haslam Mills; *The Private Character of Queen Elizabeth*, by Frederick Chamberlin; *Gambetta and the Founding of the Third Republic*, by Harold Stannard; *The Influence of the Sea on the Political History of Japan*, by Admiral G. A. Ballard; *A History of Belgium*, by Emile Cammaerts; *The Economic Development of France and Germany 1815-1914*, by J. H. Clapham; *Mr. Punch's History of Modern England*, edited by C. L. Graves; *Marlborough and the Rise of the British Army*, by C. T. Atkinson; *The History of Mankind*, by Hendrik Willem Van Loon; *The Fall of Mary Stuart*, by Frank Arthur Mumby; *Tudor Ideals*, by Lewis Einstein. Among the year's books dealing with American history the following are important: *Economic Development of the United States*, by Isaac Lippincott; *Since the Civil War*, by C. R. Lingley; *Woodrow Wilson and the World War*, by Charles Seymour; *History of the New York Times, 1851-1921*, by Elmer Davis; *The Chronicles of America*, edited by Allan Johnson; *The Maritime History of Massachusetts*, by Samuel E. Morison; *The Founding of New England*, by J. Truslow Adams.

Among works relating to the War, it is noticeable that more is being published about naval operations than about military. Of important publications there are: *A Journal of the Great War*, by General Charles G. Dawes; *The Crisis of the Naval War*, by Admiral Viscount Jellicoe; *What Happened at Julland*, by Commander C. G. Gill; *The Fighting at Julland*, edited by H. W. Fawcett

and G. W. W. Hooper, a most interesting collection of the experiences of eye-witnesses of the battle; Capt. Peter E. Wright's sensational *At the Supreme War Council*; Filson Young's *The Battle Cruisers*; volume 2 of Sir Julian S. Corbett's *Naval Operations*; Capt. A. F. B. Carpenter's *The Blocking of Zeebrugge*; John Buchan's *A History of the Great War*; Sir Philip Gibbs' *More That Must Be Told*; Reginald Viscount Escher's *The Tragedy of Lord Kitchener*; Benedict Crowell and Capt. R. F. Wilson's *How America Went to War*; E. L. Bogart's *War Costs and Their Financing*; J. A. Salter's *Allied Shipping Control*; Douglas Wilson Johnson's *Battle-Fields of the World War*; General Sir Ian Hamilton's *The Soul and Body of an Army*; Sir Charles Lucas' *The Empire at War*; J. Johnston Abraham's *My Balkan Log*; and *Watching on the Rhine*, by Violet R. Markham.

TRAVEL AND OUT-OF-DOORS. The number and quality of travel books prove their continued popularity. Most of them deal with lands very far distant from the places the books are expected to sell, usually lands about which little is known. Not so many sport books are in evidence as usual. Among the more noteworthy volumes in the field are: The fascinating *Some Experiences of a New Guinea Resident Magistrate*, by C. A. W. Monckton; *Faery Lands of the South Seas*, by James Norman Hall and C. B. Nordhoff; *The Cruise of the Dream Ship*, by Ralph Stock; *The Cruise of the Kavaa*, a burlesque of the South Sea book, by Walter E. Traprock; *Roaming East and Roaming West*, by E. V. Lucas; *The Outer Circle*, by Thomas Ranke; *Working North from Patagonia*, by H. A. Franck; *The Islanders of the Pacific*, by T. R. St. Johnston; *Lawn Tennis Up-to-Date*, by S. P. Blackmore; *South With Scott*, by Captain Edward R. G. R. Evans; *Mount Bryx*, by Henry Festing Jones; *Wanderings of a Naturalist*, by Seton Gordon; *Casual Letters From South America*, by W. S. Parker; *The Sport of Our Ancestors*, by Lord Willoughby de Broke; *Potomac Landings*, by Paul Wiltach; *A Political Pilgrim in Europe*, by Mrs. Philip Snowden; *The Leisure of an Egyptian Official*, by Lord Edward Cecil; *Birds of La Plata*, by W. H. Hudson; *A Naturalist on Lake Victoria*, by G. D. Hale Carpenter; *Mystic Isles of the South Seas*, by Frederick O'Brien; *Across Mongolian Plains*, by Roy Chapman Andrews; *A History of the Adirondacks*, by Alfred I. Donaldson; *The Lands of Silence*, by Sir Clements Markham; *Sea and Sardinia*, by D. H. Lawrence; *Three Travellers in Northern Africa*, by Emily Ward; *Present Day Golf*, by George Duncan; *A Picture of Modern Spain*, by J. B. Trend; *The People of Palestine*, by Elihu Grant; *The Friendly Arctic*, by Vilhjalmur Stefansson; *American Towns and People*, by Harrison Rhodes; *The Rainbow Bridge*, by Reginald Farrer; to which must be added the following interesting travelogues: *The Home of Fadeless Splendor, Palestine of Today*, by George Napier Whittingham; *The Great White South*, by Herbert G. Ponting; *Roumania in Light and Shadow*, by Ethel S. Pontozzi; *Twenty Years in Roumania*, by Maude Parkinson; *Policing the Plains*, by R. G. Macbeth; *Savage Sudan*, by Abel Chapman; *In the Tracks of the Trades*, by Lewis R. Freeman; *The Civilian's South India*, by "Civilian"; *Two Years in Kurdistan*, by Captain W. R. Hay; *West Africa the Elusive*, by Alan Lethbridge; *A Briton in America* by Harold Spender; *Days and Nights of Shikar*, by Mrs. W. W. Baillie.

LITHUANIA. A new state formed out of Russian territory after the late war; limits defined by a treaty with Russia, signed at Moscow, July 12, 1920, as follows: From the Dvina river west from Drujka, along the Drujka river and eastern shore of Lake Driviaty south through Postavy along the eastern shore of Lake Narocs and the Narocs river, and then through the railway junction of Molodecno along the Beresina and Niemen rivers to a point a short distance south of the city of Grodno. According to the claims of the Lithuanian government the country comprised all of the former Russian province of Kovno; all but two districts of the province of Vilna; most of the province of Suvalki; part of the province of Grodno; and part of the province of Courland. The northern frontier with Latvia nearly coincides with the former boundary between the old Russian provinces of Courland and Kovno. The area is placed at 59,633 square miles, based on statistics of 1914, and the population, at 6,699,200. About 70 per cent of the total population were Lithuanians. Capital, Vilna, with a population in 1914 of 214,600. Other large towns with their populations are: Kovno, 90,300; Grodno, 61,600; Memel, 32,000; Suvalki, 31,600.

PRODUCTION. The chief resources are agricultural products and timber. About 45.8 per cent of the total area is arable land; 24.3 per cent, meadow and pasture land; 20.3, forests. In 1920 about 13,000,000 acres were administered by the Lithuanian government, and from it were produced the following crops in hundredweights: Potatoes, 20,000,000; rye, 10,000,000; oats, 5,000,000; barley, 3,000,000; wheat, 1,500,000. Live stock in that year was as follows: Cattle, 865,000; sheep and goats, 730,000; pigs, 1,400,000; horses, 380,000.

COMMERCE. In 1920 the imports were valued at 428,728,541 marks; the exports, at 521,797,163 marks. The imports were chiefly: Foodstuffs, textiles, agriculture machinery, and fertilizers; and the exports: Flax, wood, timber, farm products, hides, and wool.

FINANCE. The following information in respect to the budget was supplied by the United States Bureau of Foreign and Domestic Commerce: The expenses of the government for the budget year of 1921 were estimated at 886,000,000 Ost marks, while receipts were estimated at 673,000,000, leaving a deficit of about 213,000,000 marks for the year. The chief items of income for the year 1921 were 273,000,000 marks indirect taxes, of which 174,000,000 marks were from customs duties; 242,000,000 marks from state properties and capital investment, by far the greater part from state railways; 57,000,000 marks from direct taxes. The principal items of expenditure were 458,000,000 marks for maintenance of the army, or over 50 per cent of the state's total outlay; 197,000,000 marks for transportation and communication, of which 131,000,000 was expended for standard-gauge and 22,000,000 for narrow-gauge lines; 38,000,000 marks for educational and vocational purposes; 138,000,000 marks for purposes of the Foreign Ministry; 25,000,000 marks for the Ministry of Finance, Trade, and Industry; 42,000,000 marks for the Agricultural Ministry; 14,000,000 marks for the Ministry of Justice. The country suffered greatly from the financial troubles of Germany, and it was estimated that between 2,000,000,000 and 3,000,000,000 marks were in circulation.

GOVERNMENT. The government is based on the provisional constitution adopted by the constituent assembly, June 21, 1920. Executive power is vested in the president and a ministry responsible to the constituent assembly. The latter body was the source of authority and was the law-making body until the parliament should be organized. The acting president at the beginning of 1921 was A. Stulginskis, president of the constituent assembly, and the prime minister was Dr. K. Grinius.

HISTORY

THE VILNA QUESTION. As noted in the articles, **WAR OF THE NATIONS** and **POLAND**, the Vilna question which had reached a critical stage in 1920 was still unsettled, despite the efforts of the League of Nations. The latter body had arranged for negotiations between Lithuanian and Polish representatives at Brussels. This broke down on account of the resistance of the Lithuanians that before an agreement could be reached General Zeligowski must resign. The Polish government now attempted to carry through a plan including the resignation of Zeligowski but encountered the vigorous opposition of the annexationist element in the Polish diet. The prime minister of Poland, himself, threatened to resign if the parliament did not accept this proposal. Finally the proposal was accepted although following in the main the lines of the plan proposed at Brussels by M. Paul Hymans, representative of the League of Nations, which plan had been rejected by the Polish negotiators. The Lithuanians, however, continued to oppose it. The Lithuanian prime minister narrowly escaped assassination on November 25. At the end of November General Zeligowski withdrew from Vilna and turned the administration over to a native of the city, reported to be moderate in his views and highly influential in the locality. The plan called for the holding of elections in the disputed area. The elections were fixed for December 11. The population of the district, according to the census of 1919, numbered 732,000.

LITHUANIAN LANGUAGE. See **PHILOLOGY**, **MODERN**.

LITTLE, CHARLES. Clergyman, died at Wabash, Ind., December 28. He was born at Granville, Ohio, Dec. 1, 1845, graduated at Marietta College in 1867, and studied at Lane Theological Seminary. He was ordained to the Presbyterian ministry in 1873, and was pastor at Wabash, Ind., from 1872 until the time of his death. He was Moderator of the 122nd General Assembly of the Presbyterian Church from 1910 to 1912.

LIVE STOCK. The fall of prices paid producers for live stock is by far the most significant happening to the industry during the past year.

It is felt now that the downward trend started in 1919 has halted.

The following tables show the changes in live stock on farms, prices and production which have taken place since the prewar years, 1910 to 1914.

LIVE STOCK ON FARMS, JANUARY 1

	Average 1910-14	Average 1915-19	1920	1921
Beef cattle.....	29,000,000	32,600,000	36,100,000	34,200,000
Dairy cattle.....	29,880,000	31,880,000	32,800,000	32,400,000
Hogs.....	59,300,000	62,040,000	62,000,000	57,600,000
Sheep.....	43,200,000	38,080,000	35,400,000	33,900,000

The numbers of live stock on farms, Jan. 1, 1921 and 1922, shows how falling prices and a lack of adequate credit have diminished the potential meat supply to a new low level per capita.

ANIMALS SLAUGHTERED UNDER FEDERAL INSPECTION

	Average, 1910-14	Average, 1915-19	1920	1921
Cattle.....	7,282,834	9,546,488	8,608,691	7,608,280
Calves.....	2,059,888	2,950,828	4,058,370	3,807,568
Hogs.....	31,986,013	39,680,123	38,018,684	38,982,378
Sheep.....	13,808,507	11,301,824	10,982,180	13,004,906
Goats.....	92,745	148,604	42,477	13,353

As the above table shows, there has been an abnormally high slaughter of calves. This is due to the interwoven effect of the low prices and lack of credit, forcing producers out of business, and high retail prices and lack of employment, forcing consumers to buy the lighter cuts, making such a demand for calves that the men who had to liquidate found calves the most saleable product they had.

This same demand from consumers for cuts from small carcasses had such an influence on the price of light cattle that feeders were influenced to centre their demand on light stuff for fattening. The result is likely to be that a premium will be paid for heavy steers during 1922. The inevitable consequence of the heavy slaughter of calves will be a shortage of beef in case of a return to normal consumption.

MILLIONS OF POUNDS OF MEAT PRODUCED

	Average, 1910-14	Average, 1915-19	1920	1921
Beef.....	6,484	6,566	6,111	5,676
Veal.....	587	641	909	885
Pork.....	9,355	10,948	10,723	10,948
Mutton.....	717	572	649	633
Total.....	17,143	18,727	18,292	18,142

MILLIONS OF POUNDS OF FRESH MEAT AND LARD EXPORTED AND IMPORTED

	Average, 1910-14	Average, 1915-19	1920	1921
	Exports	Imports	Exports	Imports
Beef and veal.....	80	61 ¹	420	63
Pork.....	499	27 ²	1,269	4
Lard.....	514	532	635	—
Mutton and lamb.....	3.8	4.2 ³	3.4	8.6 ⁴
			4	101
				7.5
				25

¹ 265 million pounds imported in 1914 alone.

² Imports for 1914—not classified on account of small amount previous to 1914.

³ 20 million pounds imported in 1914 alone.

⁴ 28 million pounds imported in 1914 and 1915.

TOTAL ANNUAL FARM VALUE OF LIVE STOCK
PRODUCED IN MILLIONS OF DOLLARS

	Average, 1910-14	Average, 1915-19	1920	1921
Beef.....	607	996	979	586
Veal.....	53	97	161	105
Pork.....	882	1,725	1,763	1,114
Mutton.....	76	109	113	80
Wool.....	56	120	120	51
Total.....	1,678	3,046	3,136	1,936

For the five prewar years, the total meat production averaged 9.8 cents per pound on the farm, while in 1921 the average was 10.7 cents.

RELATION OF 1915-19, 1920, and 1921 LIVE STEER,
WHOLESALE BEEF, AND BEEF PRODUCT PRICES¹

	Average, price 1910-14	Per cent of 1910-14 price, 1915-19	1920	1921
Steers, good to choice, price per cut, Chicago.....	7.94	164	182	111
Beef carcasses (fresh) from good native steers, Chicago.....	12.50	142	184	130
Beef, fresh native sides, New York.....	11.60	147	178	128
Beef, salt, extra mess, New York.....	16.39	158	110	90
Hides, green salted packers, heavy native steers, Chicago.....	17.20	177	181	81

The data on meat exported show how that business is shrinking to prewar size. While there has been a considerable increase during the last two years in live animals exported, it does not begin to compensate for the falling off in meats exported. There is no appreciable change in imports which form a very small part of our meat consumption. The Fordney Emergency Tariff failed to stop the importation of a large number of Canadian cattle.

The record-breaking receipts of eggs at the seven leading markets and the prices which were obtained during the year, indicate that the poultry industry is better off than any other live-stock industry.

CASES OF EGGS RECEIVED AT THE SEVEN LEAD-
ING MARKETS IN THE UNITED STATES, 1910-21

	Average
1910-14.....	13,419,846
1915-19.....	14,978,641
1920.....	15,237,352
1921.....	17,362,970 ¹

¹ Approximated on the basis of the principal five figures for the other two not being available for 1921.

The Chicago prices of steers and Chicago and New York prices of beef and hides, given above, show how wholesale prices of live-stock products are either approaching or have gone below prewar prices.

Emergency reduced rates were granted to cattlemen for shipping range cattle from the southwest to northern ranges from April 1 to September 15.

All rates on live stock, excepting horses and mules exceeding 50 cents per hundredweight, were reduced 20 per cent on September 20, effective until Dec. 31, 1921.

On December 3, the Interstate Commerce Commission approved a 10 per cent reduction for a period of 6 months on all agricultural products, excluding rates over 50 cents per hundredweight on live stock, on which the 20 per cent reduction was continued.

In accordance with the Fordney Emergency Tariff Law, passed in May, the following rates were applied to imports of live stock and live stock products which were free of duty under the Underwood Tariff Law.

Cattle, 30 per cent ad valorem. Sheep, less than 1 year, \$1, 1 year and over, \$2. Live stock for breeding, free. Meats: Fresh and frozen, 2 cents per pound; prepared and preserved, 25 per cent ad valorem. Wool: unwashed, 15 cents per pound; washed, 30 cents per pound; scoured, 45 cents per pound; manufactured, 45 cents per pound in addition to previous rates. Butter and butter substitutes, 6 cents per pound. Cheese and cheese substitutes, 23 per cent ad valorem. Milk: Fresh, 2 cents per gallon; cream, 5 cents per gallon; condensed, 2 cents per pound.

In June a plan was formulated by eastern and western bankers to pool \$50,000,000 to be loaned to live stock men in need of an extension of credit. This new organization, known as the Stock Growers' Finance Corporation, helped materially to check the precipitate liquidation of farm live stock.

The War Finance Corporation Act was so amended in August that it provided for the relief of the farm credit situation by empowering the Corporation to advance money to banks, bankers, trust companies, and cooperative associations of producers to the extent of one billion dollars for agricultural purposes, including the breeding, raising, fattening and marketing of live stock; accordingly \$145,082,039.67 was advanced during the remainder of 1921. At present the time limit for such advances is July 1, 1921. In consequence of these activities the Stock Growers' Finance Corporation suspended operations November 30, having loaned \$20,000,000.

The Packers and Stock Yards Act which was passed by Congress after years of controversy and became a law in August, 1921, provides for supervision over the public stock yards, live-stock market agencies and dealers in live stock and live-stock products to prevent false, misleading or unfair practices. At least 66 public stock yards, the commission companies operating at the markets and all packers whose products enter interstate commerce come under the supervision of this law, which is being put into effect by the Packers and Stock Yards Administration, U. S. Department of Agriculture.

The Live Stock Marketing Committee of Fifteen, composed of leaders in the live-stock industry, appointed in January, 1921, to investigate marketing problems, on November 10 recommended the organization of a great National Live Stock Producers' Association, the establishments at public stock yards of producers' live-stock commission companies allied with stocker and feeder companies, the strengthening of cooperative live-stock shipping associations, the working out of a plan of orderly marketing to avoid glutted markets, the establishment of a producers' transportation bureau, the interpretation of live-stock statistics and the carrying on of a campaign to extend the use of meat. In accordance with these recommendations, commission companies have been started at East St. Louis and South St. Paul.

The eradication of Texas fever ticks, begun in 1906 by the U. S. Bureau of Animal Industry, has resulted in the release from quarantine of 523,837 square miles or 72 per cent of the area originally infested. During the year 29,563 square miles were released; 85 per cent of the present infested area is in Texas, Florida, Arkansas, and Louisiana.

As a result of the campaign started in 1917,

under the supervision of the U. S. Bureau of Animal Industry, to eradicate tuberculosis in cattle, there were on Jan. 1, 1922, 11,587 accredited herds of 268,411 cattle, 96,644 herds of 1,051,278 cattle free under the first test; 133,481 herds of 1,871,664 cattle under Federal and State supervision and 27,180 herds of 338,139 cattle on the waiting list.

The exports of live animals for slaughter during 1921 was greater than for any year since 1908. The movement has been chiefly to western Europe and Mexico. As a result of the long warfare, there is a great shortage of live-stock, especially cattle and horses in Mexico.

During 1921, the price of purebred cattle, which reached a peak in 1919, and began to fall in 1920, dropped back over 100 per cent to average price from 1910 to 1914. The number of purebred cattle sold in public sales also dropped 100 per cent from total of 1920.

LIVING, COST OF. See **FOOD AND NUTRITION.**

LIVONIA. One of the Baltic provinces (q. v.) formerly a province of the Russian empire, on the Gulf of Riga between Esthonia and Courland; after the war divided between the two new republics of Latvia and Esthonia. Area, variously estimated at from 16,930 to 18,158 square miles; population, estimated Jan. 1, 1915, at 1,778,500.

LOCKPORT, N. Y. See **MUNICIPAL GOVERNMENT.**

LOCKS. See **CANALS; DAMS.**

LOGAN, LEAVITT CURTIS. Naval officer, died at Washington, D. C. November 23. He was

and a portrait of his father. He struck out from his will before he died the names of his nephews, on the ground of their socialistic and pacifist opinions, one of his nephews being Harry L. Danar, a former professor at Columbia, who had withdrawn from that university on account of his radical views.

LOS ANGELES, CALIF. See **GARBAGE AND REFUSE DISPOSAL.**

LOUISIANA. POPULATION. According to the report of the census of 1920, there were 1,798,509 residents in the State, Jan. 1, 1920, as compared with 1,656,388 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	1,796,000	35,022,000	\$22,764,000
	1920	1,569,000	30,125,000	25,606,000
Oats.....	1921	55,000	1,265,000	886,000
	1920	50,000	1,150,000	943,000
Hay.....	1921	223,000	1,286,000	3,924,000
	1920	220,000	1,306,000	4,950,000
Rice.....	1921	480,000	16,560,000	14,242,000
	1920	700,000	25,200,000	27,720,000
Potatoes.....	1921	27,000	1,809,000	3,256,000
	1920	27,000	1,755,000	3,563,000
Cotton.....	1921	1,282,000	1,295,000	22,125,000
	1920	1,470,000	1,388,000	27,524,000

¹ Pounds.

² Bales.

IRRIGATION. The following table presents a comparative summary of irrigation at the censuses of 1920 and 1910:

Item	Census of—		Increase ¹	
	1920	1910	Amount	Per cent
Number of all farms.....	135,463	120,546	14,917	12.4
Approximate land area of the state.....	acres.. 29,061,760	29,061,760	.....	.....
All land in farms.....	acres.. 10,019,822	10,439,481	-419,659	-4.0
Improved land in farms.....	acres.. 5,626,226	5,276,016	350,210	6.6
Number of farms irrigated.....	6,471	2,690	3,781	140.6
Area irrigated.....	acres.. 454,882	380,200	74,682	19.6
Area enterprises were capable of irrigating.....	acres.. 728,742	553,220	175,522	31.7
Area included in enterprises.....	acres.. 851,211	581,965	269,246	46.3
Per cent irrigated:				
Number of all farms.....	4.8	2.2	2.6	.....
Approximate land area of state.....	1.6	1.3	0.3	.....
Land in farms.....	4.5	3.6	0.9	.....
Improved land in farms.....	8.1	7.2	0.9	.....
Excess of area enterprises were capable of irrigating over area irrigated.....	acres.. 273,860	173,020	100,840	58.3
Excess of area included in enterprises over area irrigated.....	acres.. 396,329	201,765	194,564	96.4
Capital invested.....	\$14,063,181	\$6,859,166	\$7,204,015	105.0
Average per acre enterprises were capable of irrigating.....	\$19.30	\$12.40	\$6.90	55.6
Estimated final cost of existing enterprises.....	\$14,264,178	\$6,914,166	\$7,350,012	106.3
Average per acre included in enterprises.....	\$16.76	\$11.88	\$4.88	41.1
Average cost of operation and maintenance per acre.....	\$7.01	(²)	.....	.....

¹ A minus sign (—) denotes decrease.

² Not reported in 1910.

born in Medina County, Ohio, Jan. 30, 1846, graduated at the United States Naval Academy in 1867 and had risen to the rank of commander by May 1, 1898. He commanded the *Armeria* and the *Machias* successively during the Spanish-American War and after 1897 was Commandant at the navy yard of Pensacola, Fla.

LONGFELLOW, ERNEST WADSWORTH. Artist and the son of the poet Henry Wadsworth Longfellow, died at Boston, November 24. He was born at Cambridge, Mass., in 1845 and graduated at Harvard in 1865. After studying in Paris under well-known masters he began his work as a painter which includes among other paintings *Misty Morning; Italian Pifferari; Morning on the Aegean; The Matterhorn; Evening on the Nile; First Love;*

Rice is the only crop grown under irrigation in Louisiana, and small areas of rice are grown without irrigation, although in general the crop is irrigated. For the State the acreage of rice harvested in 1919 was 456,726 acres, the quantity produced was 16,005,936 bushels, and the value \$42,735,849.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Louisiana was issued by the Bureau of the Census, which supplied the table (page 431) giving a comparative summary for 1914 and 1919:

OFFICERS. Governor, John M. Parker; Lieutenant-Governor, Hewith Bouanchaud; Secretary of State, James J. Bailey; Treasurer, Howell

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	2,617	2,211	18.4
Persons engaged in manufactures.....	112,602	88,014	27.9
Proprietors and firm members.....	2,042	1,850	10.4
Salaried employees.....	12,216	8,499	43.7
Wage earners (average number).....	98,344	77,665	26.6
Primary horsepower.....	388,605	355,193	9.4
Capital.....	\$463,860,000	\$261,635,000	77.3
Services.....	117,500,000	50,712,000	131.7
Salaries.....	23,094,000	11,168,000	106.8
Wages.....	94,406,000	39,544,000	138.7
Materials.....	429,404,000	157,886,000	172.0
Value of products.....	676,190,000	255,313,000	164.8
Value added by manufacture (value of products less cost of materials).....	246,786,000	97,427,000	153.3

Morgan; Auditor, Paul Capdevielle; Attorney-General, A. V. Coco.

LOWELL, MASS. See MUNICIPAL GOVERNMENT.

LOWER AUSTRIA. Before the downfall of the Austro-Hungarian empire, a crownland of Austria. Area, 7654 square miles; population, Dec. 31, 1910, 3,531,814, of whom 3,130,536 were German speaking. Capital, Vienna.

LOWNEY, WALTER M. See NECROLOGY.

LOYSON, PAUL HYACINTHE. French author, died in Paris in April. He was born in 1874, the son of the well-known Gallican reformer, Père Hyacinthe, educated in England and in Paris, and became a contributor to political and literary journals. He was a strong partisan of Dreyfus and the subject of his first play, *Wagor* (1899), was the Dreyfus Affair. Other plays of his were, *The Gospel of Blood* (1902); *The Rights of Virgins*, and *Enemy Souls* (1896), and *The Apostle* (1911).

LUKE, JOHN G. Paper manufacturer, died in New York City, October 15. He was born in Springfield, Mass., Oct. 29, 1857, served as superintendent of various paper mills and built a mill in West Virginia which finally attained a daily output of 650 tons of book paper and which assumed the title of the West Virginia Pulp and Paper company.

LUMBERING. See FORESTRY.

LUMINAL. See EPILEPSY.

LUND, TROELS. See TROELS-LUND.

LUNG, GEORGE AUGUSTUS. Medical officer of the navy, died near Newport, R. I., July 26. He was born at Canandaigua, N. Y., Dec. 21, 1862; graduated at the University of Rochester in 1883, and in medicine at the University of Pennsylvania in 1886. He was appointed assistant surgeon in the United States navy, August 18, 1887; and was made surgeon in November, 1900; lieutenant-commander, April 9, 1908; and medical director in June, 1917. During the Spanish-American war he served with Admiral Sampson in Cuban waters, and he was afterwards on board the *Philadelphia* at the time of the Hawaiian and Samoan difficulties. He received special commendation from the Secretary of the Navy for his courageous conduct. In 1900 he took part in the relief expedition in China. He was in command of the United States Naval Hospital in Brooklyn after October, 1916.

LUTHERANS. This denomination in the United States is composed of three main heads: the National Lutheran Council, the Evangelical Lutheran Synodical Conference of North America, and Independent Congregations. The National Lutheran Council is an organization comprising nine Lutheran Synods or General Bodies uniting

for certain definite purposes. The official members of the Council are the United Lutheran Church, the Joint Synod of Ohio, the Buffalo Synod, the Augustana Synod, the Norwegian Lutheran Church, the Lutheran Free Church, the United Danish Church, the Danish Lutheran Church, and the Icelandic Synod. The following bodies have coöperated unofficially with the Council: the Immanuel Synod, the Jehovah Conference, the Eilsen Synod, the Church of the Lutheran Brethren, the Suomi Synod, the Finnish National Church, and the Finnish Apostolic Church. Five synods comprise the Evangelical Lutheran Synodical Conference of North America, as follows: The Evangelical Synod of Missouri, Ohio, and other States, the Evangelical Lutheran Joint Synod of Wisconsin, Minnesota, Michigan, and other States, the Slovak Evangelical Lutheran Synod of America, the Norwegian Synod of the American Evangelical Lutheran Church, and the Negro Mission. Statistics of the denomination in the United States and Canada for 1920, which are the latest available, the fiscal year of many of the branches ending December 30, show the following: 15,068 churches, 9853 ministers, 3,684,294 baptized members, 2,466,645 confirmed members, 9371 Sunday schools with 1,019,076 members, and total receipts of \$33,770,710. It is estimated that the total number of members enrolled and not enrolled in America reaches 15,000,000. Services are conducted in 17 different languages in the United States.

The activities of the National Lutheran Council are carried on at home and in foreign countries. Its energies in 1921 have been concentrated chiefly upon the work of European Relief and Reconstruction. Distribution of \$1,191,416.96 in gifts of money and food was effected in 1921 in 17 European lands as follows: France, Germany, Poland, Austria, Czecho-Slovakia, Latvia, Roumania, Finland, Esthonia, Hungary, Lithuania, Danzig, Jugo-Slavia, Ukraine, Italy, Russia, and Siberia. In addition clothing to the amount of 1,700,000 pounds was also distributed. The Council has appealed to the Lutheran Church in America for \$1,250,000 to be expended in carrying on this work in 1922.

The denomination through its various branches maintains a large number of educational institutions in all parts of the country. In 1919 there were 24 theological seminaries, 39 colleges, 7 ladies' colleges and seminaries, 52 academies, 5 normal schools, and 9 Bible schools. Other institutions consist of 9 deaconess mother houses, 47 hospitals, 13 hospices, 7 homes for defectives, 8 immigrant and seamen's missions, and 11 miscellaneous.

Each of the branches of the denomination does Home Mission Work in America. The larger

branches, such as the United Lutheran Church, maintain Home Missions and Church Extension Boards. There are twelve American societies for missionary work in India, China, Persia, Turkey, Japan, Africa, Madagascar, South America, Australia, New Guinea, Virgin Islands, West Indies, Philippine Islands, and among the American Indians and Esquimaux. There were in 1919 394 missionaries, 2648 native helpers, 123,927 native Christians, 14,214 candidates for baptism, 42,415 pupils in mission schools, and a total income reported by the official agencies of \$696,362. Contributions for benevolences in this country in 1920 were \$10,762,208. There are 36 European Missionary Societies operating in many more fields. In 1919 there were 2355 missionaries, 12,014 native helpers, 964,580 native Christians, 68,190 candidates for baptism, 230,500 pupils in mission schools and a total income of \$3,308,500. The denomination maintains 35 publishing houses in various parts of the country which issued in 1920 312 periodicals, a large number being in foreign languages. Cloth-bound books numbered 200 in 1921. These were of a secular and religious character and were classified as philosophical, Biblical or expository, dogmatical or doctrinal, historical, and practical. For further information on the Lutheran church in general, see the *Lutheran World Almanac and Annual Encyclopedia*; in addition each one of the various branches of the denomination publishes its annual or almanac. Headquarters of the church are at 437 Fifth Avenue, New York.

For the three divisions of the church, the following statistics are furnished for 1920: National Lutheran Council, 6634 ministers in America, 11,037 congregations, 2,459,392 baptized members, 1,651,609 confirmed members, 7090 Sunday schools, 82,894 teachers, and 798,672 scholars; Evangelical Lutheran Synodical Conference of North America, 3415 ministers in America, 3905 congregations, 1,289,213 baptized members, 839,685 confirmed members, 2151 Sunday schools, 11,407 teachers, and 216,358 scholars; Independent Congregations, 12 ministers in America, 13 congregations, 5200 baptized members, 2600 confirmed members, 2 Sunday schools, 39 teachers, and 605 scholars.

LUXEMBURG. A small state of central Europe, bounded by Germany, Belgium, and France; neutralized by the Treaty of London in 1867; occupied by the Germans during the late war, but restored to independence after the armistice in 1918, Capital, Luxembourg. Area, 998 square miles; population, Dec. 1, 1916, 263,824. The population of the city of Luxembourg in 1916 was 20,355. About 36 per cent of the population are engaged in agriculture. Education is compulsory between the ages of six and thirteen; primary schools in 1920 numbered 1027. The revenue, 1920-21 was 126,018,256 francs; and the expenditure, 170,547,229. Luxembourg is a grand duchy, the ruling grand duchess in 1921, being Charlotte Adelgonde, born Jan. 23, 1896, and succeeding to the throne, Jan. 9, 1919. In 1919 the constituent assembly made important changes in the constitution, namely, the vesting of all power in the nation for the abolition of secret treaties, and the introduction of universal suffrage,

pure and simple, with proportional representation. The ministry appointed in April, 1921, was as follows: Prime Minister, Emile Reuter; finance, A. Neyens; commerce, industry and labor, M. Leidenbach; justice and public work, A. Bech; agriculture and social welfare, R. de Waha.

HISTORY. The convention establishing an economic union of Belgium and the Grand Duchy of Luxembourg was signed by the plenipotentiaries of the two countries at Brussels on July 25, subject to ratification by the parliaments of each country. This act concluded a long series of negotiations. It was necessary for the Grand Duchy to conclude a treaty of this nature with either France or Belgium, inasmuch as by article 40 of the Treaty of Versailles she ceased to form a part of the German Zollverein on Jan. 1, 1919. The leading features of the convention were as follows: Both countries to be considered as one territory for the purpose of customs, subject to certain exceptions to be adjusted by a joint commission. In order to enable Luxembourg to redeem the temporary currency issued to retire the German marks that were in circulation, Belgium agreed to float a loan to the government of Luxembourg to the amount of 175,000,000 francs. The operation of the railways of the Grand Duchy to be definitely determined by a future convention. A most important provision states that the interests of Luxembourg in foreign countries will be confided to Belgian consuls wherever there may be no representative of the Government of Luxembourg. Furthermore, Belgium agrees to endeavor to obtain for Luxembourg the benefits of the commercial treaties existing between her and other countries, while all future commercial treaties must be concluded by Belgium in the name of the customs union. The execution of this convention was intrusted to a "Conseil Supérieur" composed of five members, three of whom were Belgians, the Belgian government to designate the president, who should have a controlling voice. The convention is to continue for a period of 50 years from the date of ratification, and unless one of the contracting parties denounces it one year before its expiration, it will remain in force for a further period of 10 years.

LYMAN, HENRY DARIUS. Former president of the American Surety company, died in New York City, February 27. He was born at Parkman, Ohio, April 12, 1852; and was employed in the United States post office after 1878, rising to the position of second assistant postmaster-general in 1884. He was afterwards an officer of the American Surety company, becoming its president in 1899; and the chairman of the board after Jan. 17, 1912.

LYNCHINGS. According to the National Association for the Advancement of Colored People, the lynchings during the year 1921, totaled 64. Of the victims four were publicly burned to death and five were burned after death. The total showed a decrease of two from the preceding year. Fifty-nine of the victims were negroes and the others whites. In seventy-two instances the officers of the law prevented lynchings, eight such rescues having been made in Northern States and sixty-four in Southern States. Armed forces were used to repel lynching expeditions. There were twenty instances of assault or attempted assault.

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MACAO. A province belonging to Portugal in China, consisting of the island of Macao at the mouth of the Canton River and the small adjacent islands of Taipa and Coloane. Population, Dec. 31, 1910, 74,856, of whom 71,021 were Chinese and 2,171, Portuguese. The city of Macao is divided into two parts, inhabited by Chinese and non-Chinese, respectively, and under separate administrations. The imports in 1919 were valued at 6,943,658 escudos; and the exports, at 6,398,176 escudos.

MCCABE, (WILLIAM) GORDON. Educator, died, in 1921. He was born at Richmond, Va., August 4, 1841; and graduated at the University of Virginia in 1861. He entered the army of Northern Virginia in 1861 and served throughout the Civil War, rising through the ranks to a captaincy of the artillery. He established the University School of Petersburg and Richmond in 1865 and conducted it until 1901. He was vice-rector of the University of Virginia from 1892 to 1896, and an officer in many important societies and educational institutions of the State. He wrote: *Defense of Petersburg* (1876); *Virginia Schools Before and After the Revolution* (1890); *The First University in America* (1911); and prepared various Latin text-books for the use of schools.

MCCARTHY, CHARLES. Librarian and lecturer, died, March 26. He was born at Brockton, Mass., in 1873; graduated at Brown University in 1896; and afterwards studied history at the University of Wisconsin in which State he was appointed legislative librarian in 1901. It was owing to his efforts that the legislative reference departments were established in State libraries. He was the author of *Anti-Masonic Party* (1902); and the *Wisconsin Idea* (1911). He was a member of the United States commission on industrial relations; and during the war aided Mr. Hoover in the food administration department, being sent abroad on the business for that department and the War Labor Board.

MCCOMBS, WILLIAM FRANK. Former chairman of the Democratic National Committee, died at Greenwich, Conn., February 22. He was born in Hamburg, Ark., Dec. 26, 1875; graduated at Princeton in 1898 and at the Harvard Law School in 1901, after which he practiced law in New York City. He was manager of the national campaigns which resulted in the nomination and election of President Wilson in 1912, and was chairman of the Democratic National Committee from that year down to 1916. President Wilson offered him the ambassadorship to France in March, 1913, but he declined it. Both before and after his death there was much discussion in the periodicals in respect to the controversy between him and his friends on the one hand and the supporters of the Wilson administration on the other over the question whether he had been fairly treated in view of the great services that he had rendered Mr. Wilson during the latter's candidacy. The side of Mr. McCombs was presented in a volume published in 1921.

MCDONNELL, CHARLES EDWARD. Roman Catholic bishop, died at Brentwood, L. I., August 8. He was born in New York City, Feb. 1, 1854; educated by the Jesuits of St. Francis Xavier's College and at the American College of Rome. In 1878 he was ordained priest. He was secretary to Cardinal McCloskey and to Archbishop Corrigan and was Chancellor, 1885-92. He was consecrated bishop of Brooklyn, April 25, 1892.

MACDONELL, Sir JOHN. Scotch jurist and writer, died in London, England, March 17. He was born in Aberdeenshire in 1846, and educated at Aberdeen and Edinburgh universities; called to the bar in 1873; secured a good practice in London, and was made Master of the Supreme Court in 1899. From 1901 to 1920 he was professor of comparative law at London University, and he was the first dean of the law faculty in that institution. He became well known all over the world for his writings on jurisprudence, showing an extraordinary range of learning on the subject. He believed in the continuity of the law and its steady evolution and improvement. On many occasions he did good service in bringing to light the exact content of legal terms and phrases currently misused, as for example, so late as in 1917, when in a lecture on "True Freedom of the Seas" he brought out the definite meanings of the terms. Space is lacking here for the long list of juristic writings. Aside from this work he edited the *Journal of British Legislation and International Law*; *Judicial Statistics*; *State Trials*. In 1919 he became Chairman of the Committee appointed to inquire into the responsibility of Germany for crimes during the war. His many lectures were left by him in a form suited to publication and at the time of his death two treatises were nearly ready, namely, *The History of Treaties*, and *Private International Law*. He was a staff contributor to the *London Times*.

MACEDONIA. A region of southeastern Europe, nearly corresponding to the vilayet, Saloniki, in the former Russian empire; after the Balkan wars partitioned among Greece, Serbia, and Bulgaria, Greece receiving the largest share. The departments controlled by Greece are: Saloniki, Drama, Serres, Kozani, and Florina, with a total population in 1913 of 1,194,902.

MCGHIE, JOHN. Scotch orchestral conductor, died in New York, April 29. He was born in Glasgow, in 1869. In 1894 he came to the United States, and soon he was known as one of the best conductors of light opera. He was connected with Hammerstein, Savage, the Shuberts, and the Society of American Singers. See NECROLOGY.

MCGRAW, THEODORE ANDREWS. See NECROLOGY.

MCGREGOR, THOMAS. See NECROLOGY.

MCINTIRE, CHARLES. See NECROLOGY.

MCKENNA, EDWARD WILLIAM. Railroad official, died in 1921. He was born at Pittsburg, Pa., Oct. 24, 1848; and began his railroad career as a telegraph messenger and operator on the Pennsylvania railroad in 1862. He served in the United States military telegraph department

in the last year of the Civil War. He was afterwards clerk in the office of the general superintendent of the P. C. and St. L. railroad; and in 1871 became superintendent of the Indianapolis and Vincennes railroad. After holding various offices on other lines he was made general superintendent of the eastern district of the Great Northern from 1894 to 1895; vice-president of the Chicago, Milwaukee, and St. Paul railroad, in charge of operation and construction after Sept. 23, 1909. He was also president of the McKenna Steel Working company at Joliet, Ill., from 1895 to 1903.

MACKENZIE, ALEXANDER. Army officer, died, February 23. He was born at Potosi, Wis., May 25, 1844; graduated at the United States Military Academy, 1864, in the engineer corps, and by 1901 had risen to the rank of colonel. He was made brigadier-general, chief of engineers, Jan. 23, 1904; and major-general in 1908. During the last year of the Civil War he served as assistant-engineer in the department of Arkansas. He was brevetted for gallant and meritorious service, March 13, 1865. After the Civil War he was engaged in various engineering duties, including harbor improvements in Lake Michigan; river and harbor improvements in the Mississippi, etc. He was a member of the lighthouse board from 1895 to 1904 and of the board of ordnance and fortification after 1904; and retired by operation of law in 1908, but returned to active duty during the late war, 1917-19.

MACKENZIE, CAMERON. Publisher and war correspondent, died at sea, March 18. He was born at Wilkes-Barre, Pa., Sept. 7, 1882; studied at Yale and at the New York Law School; and was on the staff of the New York *Sun* from 1901 to 1906, after which he entered the editorial office of *McClure's Magazine* of which he was the managing editor from 1907 to 1909 and the general manager and publisher from 1909 to 1911. He became owner of that magazine and also acquired the *Ladies' World*. He was special correspondent of the London *Chronicle* on General Pershing's staff during the late war, and after the armistice, special correspondent in Warsaw for the New York *Herald*. He wrote: *Mr. and Mrs. Pierce; The Prussian, and Other Stories*.

McKIM, RANDOLPH HARRISON. Clergyman, died, July 15. He was born at Baltimore, Md., April 15, 1842; and graduated at the University of Virginia in 1861. He served in the Confederate army during the Civil War from 1861 to 1865; and was ordained priest in 1866 in the Protestant Episcopal church. He was rector of parishes at Alexandria, Va., New York City, New Orleans, and after 1889 at Washington, D. C. In 1897 he was elected dean of the Theological Seminary of Virginia. On three occasions he was president of the Virginia house of deputies. He wrote many volumes on behalf of Protestantism and in respect to Christian arguments and aims. Among his later writings may be mentioned: *The Problem of the Pentateuch* (1906); *The Anglican Idea of Catholicism* (1903); *Lee, the Christian Hero* (1907); *A Soldier's Recollections* (1910); *Catholic Principles and the Change of Name* (1913); *Romanism in the Light of History* (1914); *The Soul of Lee* (1918); *For God and Country* (1918).

McQUARRIE, C. K. See NECROLOGY.

MADAGASCAR. A large island off the south-east coast of Africa from which it is separated by Mozambique Channel, the shortest distance from

the continent being 240 miles. The length of the island is 980 miles, and its greatest breadth, 360 miles. Dependent on it are the small islands of Diego-Suarez, Nossi Bé and the Sainte-Marie, Mayotte, and Comoro groups. Capital, Antananarivo. Area, estimated at 228,000 square miles; population, Jan. 1, 1918, 3,545,264, of whom 15,157 were French; 3101, other Europeans; 5272, Hindus. The main body of the inhabitants belong to the Malagasy tribes which are numerous. The first in point of numbers is the Hova, and the next the Betsileo and Betsimisaraka. The Hova language prevails throughout the island. The population of Antananarivo is placed at 63,115. The next largest city is Tamatave (15,000) which is the principal port on the east coast. The chief occupations are cattle breeding and agriculture; and the chief crops are manioc and rice. The yield of manioc in 1918 was estimated at 800,700 tons; and of rice, 701,005 tons. On Dec. 31, 1919, the cattle numbered 7,277,609. Gold is produced in commercial quantities, and copper, lead, iron, silver, zinc, antimony, manganese, nickel, sulphur, graphite, lignite and coal are found. The industries include: Silk and cotton weaving; metal working; and the making of straw hats. Imports (1919), £3,958,909; exports, £7,086,703. The leading imports were: Cottons and clothing; and the leading exports: Hides; raffia fibre; rice and gold dust. By far the greater part of the trade is with France and the French colonies. Next in importance is the trade with Great Britain and the British possessions. The chief sources of local revenue have been: Direct and indirect taxes; customs; colonial lands; etc. Railway mileage, June 30, 1919, 776. In 1918 the tonnage of vessels entered was 630,320, of which 490,563 were French. The colony is under a governor-general who acts by the advice of a consultative council of administration. Governor-general in 1921, Hubert Garbit. During the year it was announced that the governor-general of Madagascar had decided to electrify the railroads of that colony from Tananarive to Tamatave. A hydro-electric power station will be built on the Vohitra river to furnish a maximum power of 30,000 horsepower. The length of the line is 93 miles and the total cost of the installations was to reach \$4,620,000. The governor-general also was reported to be considering the electrification of the projected railroad from Diego-Saures to Joffre Ville, a line about 22 miles in length.

MAHER, JAMES DENIS. See NECROLOGY.

MAIL BY AIRPLANE. See AERONAUTICS.

MAINE. POPULATION. According to the report of the census of 1920, there were 768,014 residents in the State, Jan. 1, 1920, as compared with 742,371 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	30,000	1,500,000	\$ 1,155,000
	1920	29,000	1,305,000	1,670,000
Oats.....	1921	124,000	4,340,000	2,387,000
	1920	119,000	4,974,000	4,228,000
Wheat.....	1921	11,000	187,000	327,000
	1920	13,000	286,000	658,000
Hay.....	1921	1,260,000	1,009,000	20,134,000
	1920	1,234,000	1,173,000	28,791,000
Potatoes.....	1921	129,000	37,152,000	31,579,000
	1920	123,000	21,771,000	27,214,000

¹ Tons.

MANUFACTURES. The census Bureau published the results of the 1919 census of manufactures. As the accompanying summary shows, there was a consistent increase at the census of 1919, as compared with that for 1914, except that the number of establishments and the number of proprietors and firm members decreased. In the order of their importance from a percentage standpoint, the increases for the several items rank as follows: Value added by manufacture, 144.7 per cent; salaries, 141.6 per cent; value of products, 130.2 per cent; cost of materials, 120 per cent; wages, 118.4 per cent; capital, 79.9 per cent; number of salaried employees, 51.6 per cent; primary horsepower, 16.3 per cent; and wage earners, 8.8 per cent. The capital invested, as reported in 1919, shows a gain of \$186,807,000, or 79.9 per cent, over that in 1914. The average capital per establishment was approximately \$140,000 in 1919 and \$69,000 in 1914. The cost of materials used in 1919 shows an increase over that for 1914 of \$141,168,000, or 120 per cent. The average cost of materials per establishment in 1919 was approximately \$36,000, and in 1914 \$35,000. The value of products in 1919 shows an increase over that in 1914 of \$260,965,000, or 130.2 per cent. The average per establishment in 1919 was approximately \$154,000 and in 1914 \$59,000. The value added by manufacture in 1919 shows an increase over that in 1914 of \$119,797,000, or 144.7 per cent. The value added by manufacture in 1919 formed 43.9 per cent of the total value of products and in 1914, 41.3 per cent. In 1919, as compared with 1914, the number of salaried employees shows an increase of 2717, or 51.6 per cent, while the average number of wage earners increased 7223, or 8.8 per cent. The comparative summary for the State for 1914 and 1919 follows:

a bonus to Maine soldiers and sailors in the war with Spain; amendment of law relating to the selection and service of jurors and provision that no exemption to jury service be made on account of sex—nurses, however, being added to the exempt class; amendment of law relating to workmen's compensation.

OFFICERS. Governor, Percival P. Baxter; State Treasurer, William L. Bonney; Secretary of State, Frank W. Ball; Attorney-General, Ransford W. Shaw; Adjutant-General, John A. Hadley; Superintendent of Public Schools, A. O. Thomas.

JUDICIARY. Supreme Court: Chief Justice, Leslie C. Cornish; Associate Justices, Albert M. Spear, G. M. Hanson, Warren Philbrook, Charles J. Dunn, John A. Morrill, Scott Wilson, Luere B. Deasy.

MAINE, UNIVERSITY OF. A co-educational State institution at Orono, Maine; founded in 1862. The enrollment for the fall of 1921 was 1232 of whom 605 were in Arts and Sciences; 532 in Technology; 294, Agriculture. For the summer term the enrollment was 228. The faculty numbered 107. The income for the year was \$666,329. The library contained 70,000 volumes. The presidency was vacant and the affairs of the institution were administered by a committee consisting of the Executive Committee of the Board of Trustees and the Committee on Administration of the university faculty.

MAINE MUSIC FESTIVAL. See **MUSIC, Festivals.**

MAIZE. See **CORN.**

MALACCA. One of the strait settlements (q. v.).

MALAY STATES. See **FEDERATED MALAY STATES.**

MALKOWSKY, GEORG. See **NECROLOGY.**

	Census—		Per cent of increase ¹ 1914-19
	1919	1914	
Number of establishments.....	\$ 2,996	3,378	—11.3
Persons engaged in manufactures.....	100,101	90,758	10.3
Proprietors and firm members.....	2,747	3,344	—17.9
Salaried employees.....	7,982	5,265	51.6
Wage earners (average number).....	89,372	82,149	8.8
Primary horsepower.....	566,705	487,211	16.3
Capital.....	420,651,000	\$233,844,000	79.9
Services.....	112,018,000	50,523,000	121.7
Salaries.....	17,560,000	7,269,000	141.6
Wages.....	94,458,000	43,254,000	118.4
Materials.....	258,823,000	117,655,000	120.0
Value of products.....	461,415,000	200,450,000	130.2
Value added by manufacture (value of products less cost of materials).....	202,592,000	82,795,000	144.7

¹ A minus sign (—) denotes decrease.

LEGISLATION. Among the measures passed at the legislative session of 1921 the following may be mentioned: Regulating the use of aircraft; provision for the perpetuation and increase of the forests; prohibition of public games and amusements on Memorial Day; control of the establishment of sanitariums and hospitals for infectious and contagious diseases of the populous portions of cities and towns; consolidation of the library laws; extension of the jurisdiction of the Public Utilities Commission over certain motor vehicles; amendment of the legislation in respect to teachers' pensions and the bestowal of full pensions on teachers retiring prior to Sept. 30, 1913; amendment of State prohibition law to harmonize with the Federal law; provision for the payment of

MALTA. An island and naval base in the Mediterranean sea, constituting along with the Islands of Gozo and Comino a British crown colony; one of the chief ports of call in the world; celebrated for its fine harbor. It is the headquarters of the British Mediterranean fleet, and strongly fortified and garrisoned. Total area along with Gozo and Comino, 118 square miles; area of Malta, itself, 91½ miles. Civil population, April 2, 1911, 211,864; estimated, April 1, 1920, 224,859. The chief town and port is Valetta. In 1919-20 there were 102 public schools with 22,222 pupils. Other educational institutions included: A university with 6 faculties and 221 students; a lyceum; 2 secondary schools; and 7 technical schools; Acreage under cultivation, 1919-20, 42,860;

chief products, vegetables and fruits. The chief occupation is farming. Imports and exports (1919-20) respectively, amounted to £4,261,745 and £918,925 (including bullion and specie). Over half the imports, 1919-20, came from the United Kingdom. Tonnage entered (1919-20), 1,893,850; cleared, 1,680,602. There are 8 miles of railway, owned and operated by the local government. Governor-General and Commander-in-Chief in 1921, Field-marshal Lord Plumer.

MANCHURIA. The extensive Chinese region between the province of Chihli and the Amur river, reaching from the Hingan Mountains eastward to Korea and the Ussuri river, and comprising the three provinces of Fengtien, Kirin, and Heilung-chiang. Estimated area, 363,610; population variously estimated at from about 6,000,000 to about 29,400,000, but a 1919 estimate placed it at about 19,000,000, of whom 90 per cent were Chinese. Capital and chief town, Mukden, with about 158,132 inhabitants. The chief port is Dairen. Other important towns are: Newchwang, a sea port with a population of about 50,000; Harbin (28,600) which is connected by rail with Vladivostok, Dairen, and Tientsin; Liao-yang, 40,000; Tieling, 28,492; Taonanfu; and Changchun, 80,000.

The following information was supplied by the United States Bureau of Foreign and Domestic Commerce in 1921: The total trade of Manchuria in 1920 amounted to \$429,431,536, which was a decrease of \$61,915,970 from the 1919 trade, which totaled \$490,347,506. However, the total trade in 1913 amounted to only \$137,028,824. The 1920 trade was composed of importations of foreign goods amounting to \$156,990,557, and exportations totaling \$221,517,697, while the balance of \$50,923,282 consisted of native goods imported. Total importations of foreign goods in 1919 amounted to \$209,637,624, while the exportations in the same year were valued at \$224,041,347. In 1913 the importations were valued at \$52,874,882 and the exportations amounted to \$68,658,999.

The South Manchuria Railway, which was owned in Japan, was reported to have prospered during the fiscal year ended March 31, 1921. Net profits were \$13,500,000 and dividends of 10 per cent were authorized. This company operates a main line from Changchun, Manchuria, where it connects with the Chinese Eastern (the eastern end of the Trans-Siberian), southward to Mukden, where the line divides, one branch going southward to Dairen and the other southeastward to Eusan, in Korea. The company also operated steamers between Darien, Shanghai, and Tsingtao. See CHINA and WAR OF THE NATIONS. The leading imports into Manchuria through Dairen are cement, cigarettes, copper, cotton cloth, drills, jeans, prints, sheetings, shirtings, and yarn; electrical materials, flour, gunny bags, kerosene, machinery, matches, pipes and tubes, rails, railway cars and wagons, rice, silk piece goods, and sugar. The net imports in 1919 amounted to \$143,696,813, and the total forwarded to the interior by rail \$100,745,908. In 1920 the net imports amounted to \$96,810,024, with the total forwarded to the interior by rail, \$90,286,304. The chief exports are bean cake, bean meal, bean oil, beans, coal, kaolin, millet, perilla, pig iron, sesame, sheep's wool, sulphate of ammonia, wheat, and wild silk cocoons. In 1919 the exports amounted to \$142,709,768, and in 1920 to \$159,-

382,940. The value of soya-bean oil exported to America in these two years was \$12,216,928 and \$8,000,551, respectively. In 1920 the figures show a decrease of \$46,886,789 in imports from 1919 and an increase of \$16,623,172 in exports.

MANCINELLI, LUIGI. Italian composer and musical conductor, died at Rome, Italy, February 2. He was born in 1848 at Orvieto, studied the piano and the cello but in 1870 entered the orchestra of the opera at Rome where in the course of five years he succeeded the famous director, Terziani. His name became known abroad and he was conductor at the Drury Lane, London, 1886-88, then for five years at Madrid and next from 1893 to 1902 at New York where he was the principal director of the Metropolitan Opera House. After that he conducted at the chief opera houses of Italy. He was especially devoted to the Wagnerian opera. Among his compositions may be mentioned the operas, *Hero and Leander* (1887), *Paolo and Francesca* (1907), the overtures of *Isata* (1887), and *St. Agnes* (1905).

MANCREDE, CHARLES B. G. DE. See NECROLOGY.

MANGANESE. The domestic shipments of high-grade manganese ore—containing 35 per cent or more metallic manganese—amounted to about 13,000 gross tons in 1921, of which more than 10,000 tons were shipped from Montana, according to the United States Geological Survey. The shipments of ore containing 10 to 35 per cent of manganese amounted to about 72,000 tons, most of which was shipped from Minnesota. The shipments of manganiferous and ferruginous manganese ore amounted to about 14,000 tons. The net imports for the first eleven months of the year amounted to 386,405 tons of high-grade ore and oxide, valued at \$3,288,595. Of this Brazil contributed 247,568 tons, valued at \$7.58 per ton, and India 113,730 tons, valued at \$6.46 per ton. The most important event that may affect the future of the domestic industry was a favorable report by the House of Representatives on a proposed tariff on imports of manganese ore of one cent per pound of metallic manganese content of ore or of concentrates containing more than 30 per cent of metallic manganese. The measure has not been reported on by the Senate committee.

MANITOBA. The easternmost of the Prairie Provinces of Canada, east of Saskatchewan and west of Ontario and Hudson Bay, extending from the American border northward to latitude 60°. Area, 251,832 square miles; population (1916), 553,860; (1921), 613,008. Chief cities with population in 1921, Winnipeg, the capital, 178,364; Brandon, 15,359; St. Boniface, 12,816; Portage la Prairie, 6748. It is under a lieutenant-governor and a legislative assembly of forty-eight members elected for five years by male and female suffrage. Women are entitled to sit in Parliament. Lieutenant-governor at the beginning of 1921, W. Pugsley; Prime Minister, W. E. Foster.

MANN, MATTHEW DERBYSHIRE. Specialist in women's diseases, died, March 3. He was born at Utica, N. Y., July 12, 1845; graduated at Yale in 1867 and at the College of Physicians and Surgeons in 1871. After studying in Europe he practiced in New York City from 1873 to 1879 and at Hartford, Conn., from 1879 to 1882. He was a lecturer on gynecology at Yale from 1880 to 1882 and at the University of Buffalo from 1882 to 1910, and was at one time president of the American

Gynecological Society. He wrote: *Manual of Prescription Writing* (1879); and other works; and edited *American System of Gynecology* (1888).

MANTZIUS, KARL. See NECROLOGY.

MANURES. See FERTILIZERS.

MARATHONS. See CROSS COUNTRY RUNNING.

MARCEL, LUCILLE. See NECROLOGY.

MARCHALL, ANSELME. See NECROLOGY.

MARETZKE, MAX. American pianist, died in Oakland, Calif., January 10. He was born in South Amboy, N. J., in 1859, a son of the famous impressario. Having studied in New York and Germany, he settled in the West, where he was well known as a teacher.

MARIETTA COLLEGE. A non-sectarian co-educational institution at Marietta, Ohio; founded in 1835. For the fall session of 1921 there were 419 students enrolled. In the college proper there were 197 men and 116 women. The faculty numbered 24 and 6 members were added in the course of the year. The endowment was \$1,292,371 and the income \$84,409. The library contained 105,200 volumes. The 85th Anniversary Endowment Campaign was completed in June which resulted in the raising of \$542,000 including \$150,000 from the General Education Board and \$75,000 from the Carnegie Corporation. President, Edward Smith Parsons.

MARINE DISASTERS. See SAFETY AT SEA.

MARINE ENGINES. See INTERNAL COMBUSTION ENGINES, and SHIPBUILDING.

MARINE INSURANCE. See INSURANCE.

MARITIME PROVINCES. The name applied to the Canadian provinces of New Brunswick, Nova Scotia, and Prince Edward Island.

MARKETING FARM PRODUCTS. See AGRICULTURE, HORTICULTURE, and AGRICULTURAL EXTENSION WORK.

MARQUESS, WILLIAM HOGE. Theologian, died at Yonkers, N. Y., April 10. He was born at Sparta, Tenn., Feb. 22, 1854; graduated at Westminster College, Mo., in 1873 and became president of that college. He was afterwards professor of Hebrew literature and the English Bible at the Theological Seminary of Kentucky and after that professor of the English Bible at the Bible Teachers' Training School, New York City.

MARQUETTE UNIVERSITY. An institution of the higher learning under Roman Catholic direction at Milwaukee, Wis.; founded in 1907. It comprises the following departments, Colleges of Arts and Sciences, Applied Science and Engineering, Dentistry, Law and Economics, the Schools of Journalism and Medicine, the Conservatory of Music and Training School for Nurses. The enrollment for the fall of 1921 was 4050, and for the summer session, 330. The faculty numbered 210. The income for the year was \$1,217,850. A new gymnasium and a new building for the College of Dentistry were in process of construction. President, Rev. Herbert C. Noonan, S. J.

MARSHALL, THOMAS FRANK. Former Congressman from North Dakota, died at Detroit, Mich., August 20. He was born March 7, 1854, and received a normal school education in Wisconsin. He removed to North Dakota and was a member of the senate of that State, 1896-1900. He was a member of Congress, 1901-09 and a member of the Republican National Committee, 1912-16.

MARTIN, LOUIS. See NECROLOGY.

MARTIN, SAMUEL ALBERT. Theologian and college professor, died at Easton, Pa., March 26. He was born at Cannonsburg, Pa., Nov. 1, 1853; graduated at Lafayette College in 1877 and at the Western Theological Seminary. After studying in Scotland he was ordained to the ministry of the Presbyterian church. He held a pastorate at Lebanon, Pa. He was professor of homiletics at Lincoln University from 1855 to 1895; acting-professor of homiletics at Princeton Theological Seminary from 1902 to 1903; president of Wilson College from 1895 to 1902, and of the Pennsylvania College for Women from 1903 to 1906. After 1913 he was professor of philosophy at Lafayette College. He wrote: *The Man of Uz* (1891); *The Oracles of God* (1916); *Philosophy of Conduct* (1917).

MARTINIQUE. An island in the West Indies forming one of the Lesser Antilles, a French colony; area, 385 square miles; population (1916), 193,087. Capital, Fort-de-France, with a population of 26,399. Imports (1919), 74,670,266 francs; exports, 172,705,720 francs, of which 144,564,893 francs were rum, the other chief export being sugar. In 1919 the budget balanced at 10,314,361 francs. Tonnage of vessels entered in 1919, 341,206; cleared, 378,260. There is regular steamship service by French and American lines, and there is cable communication with the continent. The colony is under a governor, a general council, and an elective municipal council; and is represented in the French parliament by a senator and two deputies.

MARYLAND. POPULATION. According to the report of the census of 1920, there were 1,449,661 residents in the State, Jan. 1, 1920, as compared with 1,295,346 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	645,000	25,155,000	\$12,326,000
	1920	650,000	25,025,000	20,270,000
Oats.....	1921	60,000	1,620,000	729,000
	1920	50,000	1,625,000	1,138,000
Wheat.....	1921	568,000	7,952,000	8,191,000
	1920	598,000	10,166,000	16,774,000
Tobacco.....	1921	26,000	18,590,000	3,532,000
	1920	35,000	30,625,000	8,881,000
Hay.....	1921	394,000	531,000	7,995,000
	1920	403,000	624,000	15,552,000
Potatoes.....	1921	49,000	3,185,000	3,504,000
	1920	54,000	5,508,000	5,233,000
Swt. potatoes.....	1921	9,000	900,000	1,260,000
	1920	9,000	1,134,000	1,304,000

¹ Pounds.

² Tons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Maryland was issued by the Bureau of the Census. A comparative summary for the State for 1914 and 1919 is shown on page 438.

FINANCE. Figures for the budget of 1921 were not available. The total funded debt, Sept. 30, 1920, according to the State *Manual* for 1921, was \$28,364,881, as an offset to which the State held a mortgage of the Northern Central Railway Company amounting to \$1,500,000 and stocks, bonds, and cash to the credit of the sinking funds, amounting to \$10,021,004, leaving a net debt of \$18,343,876.

CHARITIES AND CORRECTIONS. The institutions

	Census—		Per cent of increase ¹ 1914-19
	1919	1914	
Number of establishments.....	4,937	4,797	2.9
Persons engaged in manufactures.....	165,757	131,391	26.2
Proprietors and firm members.....	4,993	5,005	-0.2
Salaried employees.....	20,394	14,801	37.8
Wage earners (average number).....	140,360	111,585	25.8
Primary horsepower.....	406,768	263,753	54.2
Capital.....	\$619,607,000	\$293,211,000	111.3
Services.....	189,871,000	71,801,000	164.4
Salaries.....	42,012,000	18,009,000	133.3
Wages.....	147,859,000	53,792,000	174.9
Materials.....	549,347,000	238,972,000	129.9
Value of products.....	873,945,000	377,749,000	131.4
Value added by manufacture (value of products less cost of materials).....	324,597,000	138,777,000	133.9

¹ A minus sign (—) denotes decrease.

of the State were as follows: Maryland Penitentiary, Baltimore, House of Correction, Jessup's; Crownsville State Hospital, Crownsville; Eastern Shore State Hospital, Cambridge; Pine Bluff Sanatorium, Salisbury; Rosewood State Training School, Owings Mills; Spring Grove State Hospital, Catonsville; Springfield State Hospital, Sykesville; Maryland Tuberculosis Sanatorium; Maryland School for the Deaf and Dumb, Frederick; Maryland Training School for Boys; Maryland Industrial Training School for Girls; State College of Agriculture, College Park, Md.

OFFICERS. Governor, Albert C. Ritchie; Secretary of State, Philip B. Perlman; Comptroller, E. Brooke Lee; Treasurer, John M. Dennis; Attorney-General, Alexander Armstrong; Superintendent of Schools, Albert S. Cook; Adjutant-General, Milton A. Reckford.

JUDICIARY. Supreme Court: Chief Judge, Andrew Hunter Boyd; Associate Judges, John R. Pattison, William H. Adkins; T. Scott Offutt, William H. Thomas, Hammond Urner, John P. Briscoe, Henry Stockbridge.

MARYLAND, UNIVERSITY OF. An institution of the higher learning at College Park, Md. The number of students enrolled in 1921 was 1776 and there were 121 members in the faculty. President, A. F. Woods.

MASON, WILLIAM ERNEST. Congressman, died at Washington, D. C., June 16. He was born at Franklinville, N. Y., July 7, 1850; taught school in Iowa from 1866 to 1870; and was admitted to the Illinois bar in 1872. After serving in the Illinois legislature for several years he was a Member of Congress from 1887 to 1891; United States Senator from 1897 to 1903; and Member of Congress again from 1917 to 1921. He was the author of *John the Unafraid* (1910).

MASSACHUSETTS. POPULATION. According to the report of the census of 1920, there were 3,852,356 residents in the State, Jan. 1, 1920, as compared with 3,366,416 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	65,000	3,120,000	\$ 2,402,000
	1920	64,000	2,560,000	3,200,000
Tobacco.....	1921	10,000	13,700,000	4,932,000
	1920	10,000	15,500,000	6,293,000
Hay.....	1921	435,000	541,000	14,463,000
	1920	432,000	580,000	16,136,000
Potatoes.....	1921	29,000	3,335,000	5,069,000
	1920	32,000	4,000,000	6,000,000

¹ Pounds.

² Tons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Massachusetts was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the factory system. In this census also, as in that for 1914, statistics were not included for establishments having products for the census year valued at less than \$500, except that reports were taken for establishments idle during a portion of the census year, or which began operation during that year, and whose products for such reason were valued at less than \$500. The accompanying summary shows a consistent increase at the census of 1919, as compared with that for 1914, except that the number of establishments and proprietors and firm members decreased. In the order of their importance from a percentage standpoint, the increases for the several items rank as follows: Value added by manufacture, 146.9 per cent; value of products, 144.4 per cent; cost of materials, 142.5 per cent; wages, 142 per cent; salaries, 120 per cent; capital, 91.4 per cent; number of salaried employees, 50.6 per cent; primary horsepower, 23.8 per cent; and number of wage earners, 17.6 per cent. The capital invested, as reported in 1919, shows a gain of \$1,415,478,000, or 91.4 per cent over that in 1914. The average capital per establishment was approximately \$249,000 in 1919 and \$129,000 in 1914. The cost of materials used in 1919 shows an increase over that for 1914 of \$1,326,848,000, or 142.5 per cent. The average cost of materials per establishment in 1919 was approximately \$190,000, and in 1914 \$78,000. The value of products in 1919 shows an increase over that in 1914 of \$2,369,685,000, or 144.4 per cent. The average per establishment in 1919 was approximately \$337,000 and in 1914, \$137,000. The value added by manufacture in 1919 shows an increase over that in 1914 of \$1,042,837,000 or 146.9 per cent. The value added by manufacture in 1919 formed 43.7 per cent of the total value of products and in 1914, 43.4 per cent. In 1919, as compared with 1914, the number of salaried employees shows an increase of 29,988, or 50.6 per cent, while the average number of wage earners increased 106,961, or 17.6 per cent. A comparative summary for the State for 1914 and 1919 is shown on page 439.

FINANCE. Cash on hand, Dec. 1, 1920, \$16,300,012; receipts during the year, \$116,411,953; payments, \$115,403,917; cash on hand, Dec. 1, 1921, \$17,308,047. The actual revenue in 1921 was

	Census—		Per cent of increase ¹ 1914-19
	1919	1914	
Number of establishments.....	\$ 11,892	\$ 12,013	—1.0
Persons engaged in manufactures.....	812,338	676,642	20.1
Proprietors and firm members.....	9,457	10,710	—11.7
Salaries employees.....	89,222	59,234	50.6
Wage earners (average number).....	713,659	606,698	17.6
Primary horsepower.....	1,729,529	1,396,722	23.8
Capital.....	2,964,436,000	1,548,961,000	91.4
Services.....	1,010,176,000	425,024,000	137.7
Salaries.....	184,149,000	83,714,000	120.0
Wages.....	826,027,000	341,310,000	142.0
Materials.....	2,258,232,000	931,384,000	142.5
Value of products.....	4,011,058,000	1,641,373,000	144.4
Value added by manufacture (value of products less cost of materials).....	1,752,826,000	709,989,000	146.9

¹ A minus sign (—) denotes decrease.

\$51,362,700; payments from revenue receipts, \$41,491,348. Net direct debt, Dec. 1, 1921, \$29,311,797; net contingent debt, \$54,955,119—a decrease of the direct debt during the year of \$5,816,443, and of the contingent debt of \$2,152,834.

EDUCATION. The number of pupils in the schools in the year ending June 30, 1921, was 594,593; average daily attendance, 554,647; number of teachers, 19,150; average annual salaries of teachers in the elementary schools, \$2483 (men) and \$1354 (women); of all teachers including high schools and special courses, \$1498. The proportion of men to women teachers in all public schools, Jan. 1, 1920, was 1 to 9.1. Expenditures for support of public schools for the year ending June 30, 1921, \$45,779,017.

CHARITIES AND CORRECTIONS. The State Institutions are as follows: State Prison, Boston; Massachusetts Reformatory, Concord; Reformatory for Women, Sherborn; Prison Camp and Hospital, Rutland; State Farm, Bridgewater; State Hospitals for the Insane at Worcester, Taunton, Northampton, Danvers, Westborough, and Medfield; Monson State Hospital, Palmer; Gardner State Colony, Gardner; Massachusetts School for Feeble-Minded, Waltham; Wrentham State School, Wrentham; State Hospitals at Boston, Foxborough, and Grafton; Norfolk State Hospital, Pondville; Hospital Cottages for Children, Baldwinville; Boston Psychopathic Hospital, Boston; Lyman School for Boys, Westborough; Industrial School for Boys, Shirley; Industrial School for Girls, Lancaster; Massachusetts Hospital School, Canton; State Infirmary, Tewksbury.

LEGISLATION. Among the measures passed at the session of the legislature in 1921 may be mentioned the following: Extending the law relating to educational certificates of minors employed in bowling alleys, pool and billiard rooms, boot-black stands, barber shops, construction and repair of buildings, and express and transportation companies, such minors not to be employed unless in regular attendance at school; extending the law relating to employment certificates to provide for domestic service and service on farms; providing for the marking and sealing of cans and containers used in the wholesale distribution of milk or cream; relating to the disposition of motor vehicle fees and fines and to appropriations for the State's share of the expense in maintaining boulevards in the metropolitan district; provision for the appointment of a special commission on the necessities of life to study and investigate the circumstances affecting the price of fuel and other essential commodities; authorizing savings banks

to establish and maintain safe deposit vaults and to rent boxes therein; amendment providing for suits by and against certain voluntary unions; elaborate provisions in respect to game protection; providing assistance and relief to neglected, dangerous, or uncontrolled feeble-minded persons.

OFFICERS. Governor, Channing Cox; Lieutenant-Governor, Alvan T. Fuller; Secretary of the Commonwealth, Frederic W. Cook; Treasurer, James Jackson; Attorney-General, J. Weston Allen; Auditor, Alonzo B. Cook.

JUDICIARY. Supreme Court: Chief Justice, Arthur Prentice Rugg; Justices, Henry King Braley, Charles Ambrose De Courcy, John Crawford Crosby, Edward Peter Pierce, James Bernard Carroll, Charles Francis Jenney.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. A non-sectarian technological institution at Cambridge, Mass.; founded in 1861. There were 3505 students enrolled for the fall session of 1921 and 1487 for the summer session. In the regular course there were about 500 students each in mechanical, electrical, and engineering administration; 400 in chemical engineering; 300 in civil engineering; 100 in mining, architecture, naval architecture, and electro-chemistry; and the remaining 900 were distributed among the following courses: Chemistry, biology, physics, general sciences and general engineering, sanitary engineering, and geology. The total teaching staff numbered 400 and the faculty 172, an increase of 12 professors and 25 instructors over the preceding year. The productive funds were \$14,902,276 and the income \$2,147,068. The library contained 145,750 volumes. During the year a new building for the Pratt School of Naval Architecture was completed and it was ready for occupation by October 1. President, Ernest Fox Nichols, LL.D. (resignation on account of ill health, to become effective in January, 1922). Acting president, Dr. Elihu Thomson.

MASTERSON, WILLIAM BARCLAY (BART MASTERSON). Former sheriff of Dodge City, Kansas, sporting writer, and friend of Theodore Roosevelt, died in New York City, October 25. He was born in Illinois in 1854; went west when a boy, and joined a party of buffalo hunters at Fort Dodge, Kansas. Many stories are told of his fights with cowboys and Indians, and his other adventures. On one occasion, with nine companions, he withstood an attack of three hundred Indians for twenty-one days. He took part in the battle of Red River and other Indian engagements. He was made Chief of Police of the Santa Fe Railroad during its construction, receiving a salary of \$10,000 a month, and owing to his fame

as a fighter he was not obliged to make a single arrest. Afterwards he was City Marshal of Trinidad, Tombstone, and Tucson, and United States Marshal of Denver. During Roosevelt's sojourn in South Dakota as a ranchman, Masterson and he became close friends. In the latter part of his life he was known as a writer on sports and was engaged in this occupation at the time of his death.

MATERNITY INSURANCE. See UNITED STATES.

MATERNITY PROTECTION. On the day before Thanksgiving, President Harding signed the Maternity Bill, providing for Federal coöperation with the States in promoting the welfare of maternity and infancy. After more than three years of struggle, the bill was passed by both houses of Congress by overwhelming votes. To the Children's Bureau of the United States Department of Labor was given the administration of the act, and the Chief of the Children's Bureau was made the executive officer. A Board of Maternity and Infant Hygiene, consisting of the Chief of the Children's Bureau, the Surgeon-General of the United States Public Health Service, and the United States Commissioner of Education, acquired certain powers of review and approval. A total appropriation of \$1,480,000 was authorized for the current fiscal year, and an appropriation of \$1,240,000 for each of five years thereafter. Except for a very small percentage to be used for administrative purposes, the money was to be divided among the States accepting the provisions of the act, to be used, together with State funds, for promoting the welfare and hygiene of maternity and infancy. At least six States in the 1921 sessions of their legislatures passed laws accepting the Act, if it should become a law, and authorizing a State board or division to coöperate with the Federal government. These States include Delaware, Minnesota, New Hampshire, New Mexico, Pennsylvania, and South Dakota. The rest of the States did not have to wait until the next regular session of their legislatures, for the law provided that if the legislature has not acted, the Governor may, in so far as the laws of his State permit, accept the provisions of the Act and authorize a State agency to coöperate with the Children's Bureau until the legislature has had opportunity to act. More than 30 States had child welfare or child hygiene divisions in their State Boards of Health, and in these States the law provided that its administration should be in the hands of these divisions. Any State desiring to benefit from the Act must submit to the Children's Bureau detailed plans for its administration, these plans being subject to approval of the Federal Board of Maternity and Infant Hygiene. The contributions of the Federal government to the States were to be as follows: \$10,000 the first year, and \$5000 a year thereafter to each State indicating its desire to coöperate; an additional \$5,000 to be paid providing the State appropriates \$5,000 of its own for the same purpose. That makes a total of \$15,000 the first year and \$10,000 a year for each year thereafter available from Federal funds to each State regardless of its size. In addition \$710,000 a year was to be distributed among the States on the basis of population, providing the amounts thus apportioned are matched by State appropriations. The act contains specific clauses protecting parents in their right to liberty of action, and providing that the States shall take

the initiative in preparing and carrying out plans.

In 1921 Minnesota and New Hampshire passed acts to promote the public health by providing protection for maternity and infancy; and New York amended the general municipal law by authorizing municipal corporations to appropriate money for prenatal maternity care.

MATRUCHOT, L. See NECROLOGY.

MAUDHUY, L. E. DE. See NECROLOGY.

MAURITANIA. A so-called civilian territory of French West Africa (q. v.), consisting of 8 districts with a total area of 344,967 square miles, and a population of about 258,000, who are for the most part Moorish Mohammedans. The budget in 1920 was 2,984,600 francs. It is under a commissioner of the governor-general of French West Africa.

MAURITIUS. An island colony belonging to Great Britain situated in the Indian Ocean, 500 miles east of Madagascar; constituting along with its dependencies of Rodrigues, Diego, Garcia, and other small islands a crown colony. Area, about 720 square miles; population (1911), 377,083; estimated, Dec. 31, 1919, 364,493. Capital, Port Louis, with a population in 1919 of 40,106 (with suburbs). The greater part of the population is Indian. Total imports (1919), £3,135,802; exports, £8,524,164. Revenue (1918-19), £920,871; expenditure, £980,757. The railway lines have a mileage of 119.65. Tonnage entered in 1919, 321,525, of which 255,558 were British; cleared, 326,833, of which 253,759 were British. Mauritius is under a governor, aided by an executive council and a council of government, which is in part elective. Governor at the beginning of 1921, Sir H. Hesketh Bell.

MAYOTTE AND COMORO ISLANDS. An archipelago belonging to France and administered by the governor-general of Madagascar. Area, 837 square miles; population estimated at 197,900.

MEAT. See LIVE STOCK.

MECKLENBURG-SCHWERIN. Formerly a grand duchy and constituent state of the German Empire. The throne was vacated in November, 1918. For statistics, see YEAR BOOKS preceding 1919.

MECKLENBURG-STRELITZ. Formerly a grand duchy of the German empire; proclaimed a republic in November, 1918. For statistics, see YEAR BOOKS preceding 1919.

MEDICINE, CHEMICAL. The Chemical Foundation sent out at the close of the year 1921 a small brochure which pointed out the future rôle of the chemical sciences in the practice of medicine. Among the conquests in this field the first mentioned is the preparation of synthetic drugs for local anæsthesia, which has in part revolutionized operative surgery. These have been obtained in part by making changes in the molecule of cocaine which eliminate certain undesirable and dangerous properties. In similar manner the alkaloid morphine can be made to yield several less harmful narcotics and the natural substances caffeine and theobromine, which have marked diuretic properties, have paved the way for several synthetics which exceed the natural substances in this respect. The report next mentions the artificial organic arsenics which have revolutionized the treatment of syphilis, atophan, the synthetic specific for gout, the great group of hypnotics which includes

trional and veronal, and the remarkable antiepileptic, luminal. Chemistry also prepared an active principle from the crude chaulmoogra oil which bids fair to conquer leprosy. The standard remedies for hookworm are natural substances and if they or similar bodies could be made synthetically it would mean a more vigorous opposition to that wholesale infestation. The active principle of the suprarenal glands can be made by synthesis and is a most valued heart stimulant, while quite recently Kendall of the Mayo Foundation has isolated an intensely active principle, thyroxin from the thyroid gland. The subjects of vitamins, serums, antitoxins, etc., belong here, but thus far active principles have not been definitely isolated, although certain definite aminoacids which can be prepared artificially have a notable effect on growth and nutrition. Three great scourges, tuberculosis, pneumonia and cancer have thus far proved refractory to chemical medication. The report also includes physical chemistry with especial emphasis on colloid medication. See COLLOIDAL THERAPY.

MEDICINE, PROGRESS OF. The year 1921 was not remarkable for innovations of any kind. There were no wholesale infections, no new diseases, no remarkable discoveries in pathology or treatment. The individual titles in alphabetical order comprise: ALCOHOL AND MEDICAL PRACTICE; ANTHRAX; APPENDICITIS; BUBONIC PLAGUE; CANCER; COLLOIDAL THERAPY; DIABETES; DIPHTHERIA; EPILEPSY; FOOD POISONING; GALL-STONE DISEASES; HEART DISEASE; INFANTILE PARALYSIS; LEPROSY; MEDICINE, CHEMICAL; NEPHRITIS; ORTHOPEDIC SURGERY; PSYCHOANALYSIS; RHEUMATISM; RICKETS; SMALLPOX; SURGERY; TRICHINIASIS; TUBERCULOSIS; TYPHOID FEVER; VITAL STATISTICS; WHOOPING COUGH; WOUNDS, TREATMENT OF, and YELLOW FEVER.

MEIGHEN, ARTHUR. Prime Minister of Canada in 1921. He was born at Perth, Ont., June 16, 1874, and was returned to the House of Commons in 1909 for a Manitoba constituency. From that time on he held his seat in Parliament by increasing majorities, gaining a great reputation as a speaker. In politics he has been a protectionist. His recent policy tended to maintain the war powers of the government in time of peace. As a speaker he differed from others in the careful and precise use of language, having made a close study of the masters of English. See CANADA.

MEMPHIS, TENN. See MUNICIPAL GOVERNMENT.

MENDELBERG, WILLEM. See MUSIC, *Orchestras*.

MERCIER, AUGUSTE. See NECROLOGY.

MESOPOTAMIA. The region of the Euphrates and Tigris rivers between Northern Arabia and Persia; formerly a part of the Turkish empire in Asia, comprising the vilayets of Bagdad, Basra, and Mosul; conquered by British and Indian troops during the war; recognized as an independent state by the peace treaty with Turkey, and allotted by the Supreme Council under mandate to Great Britain. Area, 143,250 square miles; population, according to the census of 1920, 2,849,282, distributed as follows: Bagdad, 1,360,304; Basra, 785,600; Mosul, 703,378. According to religion the population was distributed as follows: Shiite Mohammedans, 1,494,015; Sunnite Mohammedans, 1,146,685; Jews, 87,488; Christians, 78,792; other religions,

42,302. The chief seaport is Basra at the head of the Persian Gulf. The country has abundant agricultural resources, and the soil is adapted to the production of wheat, cotton, barley, date palms, and peanuts. It is rich in oil which is its chief production. Petroleum wells are exploited at Mandali, northeast of Bagdad, and at Gasara, near Mosul. For general description of the natural and economic conditions and recent developments, see preceding YEAR BOOK. The commerce in 1919 as given by British authority was as follows: Imports, £11,940,404; exports, £7,150,268. Nearly 50 per cent of the imports were cotton goods, and sugar stood next. The chief imports were carpets and grain. The budget for 1919-20 was as follows: Revenue, £3,437,000; expenditure, £3,692,000. Before the war the only railway was the small section of the Bagdad railway from Bagdad to Samara, built by the Germans; but during the war several lines were built for military purposes, aggregating about 1100 miles, of which after the armistice 937 miles were turned over to the civil administration. After that construction continued, including a line connecting Basra and Bagdad with the Euphrates, and the extension of a line from Telerite to Kalat-Sharkat. In 1920 the government was under a council of state, formed provisionally until a national assembly should form the constitution. For government and history in 1921, see below.

THE NEW KINGDOM OF IRAK. The principal event in Mesopotamia during the year was the setting up of a new government under the Emir Feisal. At the beginning of the year there were reported to be about 250,000 British troops in the country. Against them were the Arab tribes who were supported and instigated, according to press accounts, by Turkish and Russian Soviet agents. Prince Feisal, son of King Hussein of the Hedjaz, had visited London and was endeavoring in January to get the support of the British government in securing the throne of the kingdom of Mesopotamia under British mandate. In these endeavors he was opposed by the French who had balked his efforts to rule over Syria. The British colonial secretary supported his candidacy and tried to meet the objections of the French in an exposition of the affair before the House of Commons, April 14. On August 23 Feisal was crowned king of Irak or Mesopotamia at Bagdad. The kingdom included the Turkish vilayets of Bagdad and Basra, and part of Mosul, with an area of about 140,000 square miles, and a population of about 2,000,000. Upon the coronation of Feisal he called upon the President of the Provincial Council to form a ministry which consisted of the President of the Provincial Council as prime minister with the chiefs of the following departments, imperial defense, finance, justice, commerce, public works, education, and health. On September 20 it was reported that the Turkish Nationalists were gathering their forces and strengthening their positions on the border and that they had sent into that region a body under Nihad Pasha for the purpose of subduing the Kurds and of stirring up a revolution against King Feisal. A little later it was reported that if a revolt should break out against Feisal, the Turks would support a Persian official as King in his place.

MESOTHORIUM. See RADIUM.

METALLURGY. With general depression and lack of activity in the mineral industry as shown by the shutting down of many mines and smelting and refining plants the world over, it was hardly reasonably to expect developments or advances in metallurgy either on the scientific or practical side. Reference to the articles on the various minerals elsewhere in this YEAR Book will amply show this condition and in many cases mine managers, superintendents, engineers, and chemists were more concerned with problems of economy and possible reductions of costs, when operations could be extended than with developing new processes or installing new methods. In fact so many plants were run either at a loss or on a narrow margin, that is, assuming they were run at all, that any steps involving capital expenditures were hardly to be thought of. In other words, the economic situation was such that mine managers were interested rather in whether they could or should operate at all rather than in improved methods of operation save those involving the usual economics.

GOLD. As in 1920 no metallurgical discoveries sufficient to alter in any way the conditions of gold production were recorded in 1921. No methods either of mining or of treatment of low grade ores were brought to light which would warrant the working of gold-bearing ore with a lower content than was being handled at the best organized mines.

SILVER. With lead and other mines where silver was obtained as a by-product closed down there was little opportunity for developments in this field as the leading production of silver in the United States in 1921 came largely from straight silver mining made possible by the operation of the Pitman Act. (See **SILVER.**) Here there was little to record in the way of metallurgical progress.

COPPER. With the copper references of the United States operating at but little more than 35 per cent of their capacity it was of course impossible to look for extensions and improvements in this quarter. Accordingly attention was divided to South America to the developments of the Chile Copper company, and to Africa where the Union Minière du Haut Katanga had extensive works under way. The Chile Copper company planned to increase its capacity so as to treat 27,000 tons of ore daily, or more than 300,000,000 lbs. of copper per annum, and to follow this successively by increases to 40,000 tons and 50,000 tons per day. There was also to be a large plant for the treatment of ores that did not leach readily. The plans and specifications for the second extension were understood to be complete during the year, but active work was held up on account of high costs. This entire plant was to turn out electrolytic copper, and when fully developed would have a capacity of between 500,000,000 and 600,000,000 lbs. a year, which would be available for the European market. The Katanga company had extensive hydro-electric resources which it was engaged in developing, so that it also could refine copper on a very extensive scale. It had commenced the construction of a 4000-ton concentrating plant which would handle ores that could not be leached and were too low grade for direct smelting. At the same time there was being installed a leading plant,

said to be of 110,000,000 tons of copper annual capacity. These developments were reported to be but initial phases of a much larger scheme so that not only could 200,000,000 lbs. of copper be refined for the European market each year, but the output in a short space of time would be increased to some 400,000,000 lbs. per annum. In both these instances the production conditions and costs were most favorable and the work could be handled on a large scale.

In Peru the Cerro de Pasco Copper Corporation in its new plant was introducing some notable features of modern practice. Horizontal Symons crushers were to be employed or the intermediate crushing and rolls for the finer crushing. The recent developments in the way of Cottrell electrostatic treaters for recovering the fine dust in roaster furnaces were also being applied and the new roaster furnaces were being equipped with individual tube type treaters. This plant also was making arrangements for treating by the sintering process ore that carried 2 per cent copper, 12 per cent zinc, and 25 ounces of silver per ton. During the year at several plants, notably the Garfield Smelting Works and the International Smelting Co.'s plant at Miami, Ariz., new methods were in use for receiving, unloading, and sampling the concentrates when delivered to the plant. Improved roaster furnaces were also the order of the day with increased number of hearths and the use of high temperature bonding cements so that with the use of firebrick furnace linings and hearths the interiors were virtually made into a monolithic structure. Here, as elsewhere, more attention was being paid to heat insulation not only in the roaster furnaces but in the containing hoppers and the transfer cars.

The treatment of furnace gases both for the recovery of dust losses and to minimize the fume nuisance made progress during the year. Different types of Cottrell electrostatic treaters were installed at a number of plants, while in the case of sintering furnaces dust collectors and fans were fitted so that the gases would be cooled before entering the fans.

At some of the smelters there was a tendency during the year to reduce the size of the furnace, and naturally at a time of enforced economies care was being taken with fuel, draft control, and charging methods. The same held true for blast furnaces; powdered coal as a substitute for coke giving encouraging results, though where fuel oil was available at a reasonable price as in the Southwest of the United States the reverberatory furnace was considered the more economical. Such instances as the foregoing were typical of the work in the metallurgy of copper during the year, the various plants seeking earnestly to reduce costs and secure more efficient operation without making too radical changes of equipment and method.

LEAD. In 1921 it was only the mines and plants that could produce lead at a low cost that were able to work and in many cases it was stated that only the highest grade deposits were being mined and the ore treated. There was no record of important metallurgical or mechanical developments during the year and the industry was especially indebted to the flotation process which had been introduced into progressive plants just before the war. Without flotation in the mills in many cases there would have been required an even more extensive closing down than prevailed

during the year. Generally speaking lead metallurgists believed that further reductions of cost must come rather from economic services than from any technical developments that the immediate future promises.

NICKEL. With all the Sudbury smelters shut down except for one furnace, and the refineries closed it was hardly possible to look for metallurgical developments in this region from which 85 per cent of the world's supply of nickel is obtained. The Sudbury ores when treated also afford gold and silver and important amounts of platinum and palladium. In 1920 in the refining operations, 8400 ounces of platinum were recovered and 10,200 ounces of palladium, as well as other metals of the platinum group such as ruthenium, rhodium, and iridium. Of course nickel was required for various alloy steels and other purposes and for these metallurgists were still working so as to be able to supply the material and find new applications for it.

IRON AND STEEL. During the year there were in progress interesting experiments on low-grade and other iron ores requiring special treatment. The Mesabi Iron Co. which owned a large tract of low-grade iron ore deposits in the eastern Mesabi district of Minnesota, in the form of magnetic taconite, was at work on a concentrating and sintering plant from which commercial iron already was produced. Here the ore was crushed, concentrated on magnetic concentrators and then sintered, the first unit of the plant having a capacity of 1000 tons a day and being a part of an installation that later was to supply 30,000 tons a day. In Canada interesting experiments were in progress for a new method of smelting titaniferous iron ore in a blast furnace. Here silica was used as a flux instead of limestone and encouraging results were attained. The experiment was not entirely completed but it was distinctly encouraging as promising a method for the effective and economical treatment of titaniferous iron ores, even these with a considerable percentage of silica.

In the new Ford foundry some interesting advances in iron and steel metallurgy were to be noted, especially where the iron from the blast furnace was cast directly. This plant at the end of the year had four cupolas in operation out of the projected twenty-four, which were to form its complement, the plant being designed for a capacity of 2500 tons of castings a day. This was said to be the first foundry where direct metal from the blast furnace was used on a large scale and the iron was found to run by uniform. In fact it was possible to produce castings with 80 per cent direct blast furnace iron and 20 per cent cupola metal, though it was proposed to use on the average about a 50 per cent mixture, ranging perhaps 10 per cent either way. The cupolas were changed mechanically from cars through chutes, each cupola having two, so that iron could be added from either side. The hot metal from the blast furnace was poured into 75-ton ladle cars and brought to the foundry where it was transferred to 20-ton mixer ladles and there combined with the cupola iron to be poured into the regular foundry ladles for running onto the foundry floors.

The use of the electric furnace in the metallurgy of iron and steel furnished an interesting field of development during the year. In a report

of the Electric Furnace Association the conclusion of most of the users of electric furnaces was that voltages up to 140 were satisfactory but those from 160 to 250 were not favorably regarded both on account of the effect of the long arc in the brick work and as was claimed on the metal itself. A notable event of the year was the successful use of two 40-ton Hewett electric furnaces at the Navy Armor Plate Plant at Charleston, W. Va. These were of circular cross sections with a shell 18 ft. in diameter and 8 ft. high being provided with 3 electrodes 24 inches in diameter in the case of those of amorphous carbon and 14 inches in diameter for those of graphite. The furnaces will tilt for pouring in the usual manner and can produce ingots of electric steel up to 80 tons in weight. The plan followed was to use two 75-ton basic open-hearth furnaces to provide the hot metal for the electric furnaces and in the former the metal is partly purified. The two furnaces have proved remarkably successful and ranked among the largest units of the kind. It was believed that 100-ton furnaces of this general type were quite possible. The electric furnace was clearly demonstrating its supremacy in many fields, and one of the largest manufacturers of manganese steel castings in the United States was about to employ it exclusively or at least largely for his output. Another development of the year in the United States was the construction of a two-ton induction furnace for foundry work, this effort being another attempt to place this type on a commercial scale.

The electrolytic deposition of iron on a rotating mandrel to produce iron tubes on a process modified from that used in France, was another matter of interest during the year in the United States. In the French experiments hot ferrous chloride solution was used as an electrolyte, but in the American work the solution was made directly from iron ore. These tubes showed 99.92 to 99.99 per cent iron and when removed from the mandrels they were annealed to remove the brittleness which electrolytic iron has when deposited.

Improvements were announced during the year designed to increase the life and efficiency of open-hearth furnaces. In the Egler furnace improved combustion was secured by mixing the air and producer gas fuel in the port instead of in the hearth. In the McKune furnace and also in the Venturi furnaces improved combustion was also secured. Again improvements were secured in open-hearth furnaces where by-product coke-oven gas was used and also in the use of cupolas to provide hot metal for open-hearth furnaces. In the cupola fuel oil was employed in Germany to replace a part of the coke.

During the year the metallurgical press recorded successful manufacture of carbon and nickel steel castings in the form of cylinders with walls from 0.5 inch to 3.50 inches in thickness made by the centrifugal process. In these castings the only segregation was in a radial direction and by heat treatment different physical properties could be secured which might result in a material comparable to forged steel. Another novelty of the year was a plant designed to make welded steel pipe of from 24 inches to 96 inches in diameter from material $\frac{1}{4}$ to $1\frac{1}{2}$ inches thick. After steel plates had been bent to shape by means of rolls the lap was heated for a section

with gas burners both inside and out, and welded by a power hammer; this was done for successive sections so that a welded pipe of larger size than hitherto made and comparable with rivetted pipe could be turned out. Of course welded pipe had distinct advantages as it would carry more water for the same size than rivetted pipe.

The manufacture of stainless iron which was made in the electric furnace with less than 0.10 per cent of carbon from carbon-free ferrochrome was increasing during the year. It had certain superiorities over stainless steel in that it could be forged, pressed, and stamped more extensively and readily. Another interesting set of alloys were those where nickel and cobalt were being added to cast iron. The addition of cobalt served to reduce the strength and increase hardness so that it did not promise to be of much usefulness, but nickel up to 1 per cent or 1.5 per cent seemed to give greater hardness, resistance to wear, and more especially bending, tensile and compression strength. Nickel in still greater amounts was being added to the iron used in casting the small electric resistance grids.

Alloy steel continued to be studied during the year and papers were published on the advantages of the use of molybdenum in nickel, nickel-chrome and chrome vanadium steel. The addition of molybdenum seemed to increase strength and ductility, while in cast steel physical properties resembling those of forged steel were attained by the addition of molybdenum when specially heated.

METALS. See CHEMISTRY, INDUSTRIAL and METALLURGY.

METEOROLOGY. Among the important events of the year were two international conferences. The seventh meeting of the International Commission for the Investigation of the Upper Air was held at Bergen, Norway, July 25-29. The theory of the "polar front," described in the last YEAR BOOK, occupied a prominent place in the discussions at this meeting. According to this theory, the successive cyclones of the temperate zones are waves on the boundary surface between the cap of polar air and the surrounding warm air masses. The corresponding boundary line at the ground, accordingly traverses the centres of depressions round the pole. The extreme northern ends of the warm waves coincide with the centres of low pressure, and the cold waves of polar air between them constitute the moving wedges of high pressure. The examination of depressions individually, from their formation to their disappearance, shows that young depressions correspond to slight waves with small excursions from the equilibrium state. Later the amplitudes increase simultaneously with a deepening of the depression. The ascending currents starting from the warm wave gradually diminish the area of the warm sector of the cyclone. The tongues of polar air on both sides of it accordingly approach each other and finally close together, so that air of cold origin surrounds the cyclonic centre on all sides. The potential energy of the system of adjacent cold and warm air masses is then lost and the cyclone begins to fill up. Likewise the missing asymmetry of structure makes the cyclone during its last stage slow-moving or stationary. Usually each cyclone follows more southerly a track than the foregoing one, so that the belt of depressions step by step

approaches the subtropics. The northward displacement of the tracks, however, always takes place in one big step. These conditions make it possible to divide the cyclones into families, each family beginning with the cyclone first removing the belt of depressions to higher latitudes. Between the last cyclone of one family and the first one of the next, the polar air has free passage southwards into the trade winds. Each family usually consists of four cyclones (not always), the first and third of which are generally the strongest.

The first meeting for general purposes of the International Meteorological Committee, appointed by the Conference of Directors of Meteorological Institutes and Observatories held in Paris in 1919 in continuation of the committees which have organized international meteorology from the Congress of Vienna in 1873, was held during the week of September 12-17, in London. The chief business of the meeting was to receive reports from the commissions for special departments of meteorological work. The principal recommendations discussed were those (1) inviting observations of the upper air from land and sea, and proposing to resuscitate the practice of preparing and issuing an international publication of the results contributed by the various countries, and to obtain subventions for the purpose of compiling, editing, publishing, and distributing the publications; (2) setting out an agreed code for land stations and two alternative codes for ships at sea, between which a selection should ultimately be made, for weather telegraphy; and (3) proposing suitable coöperation for the collection of oceanographic data. The Polar Commission is to coöperate with Amundsen in his proposed drift across the polar seas. A new commission was set up for the further study of clouds; the *Réseau Mondial* was discussed; and considerable attention was devoted to the application of meteorology to agriculture and to forestry. Owing to the impossibility of direct coöperation between former belligerents, the neutral countries are for the present to act as intermediaries.

A notable extension of the radiographic distribution of forecasts and weather information by the U. S. Weather Bureau was made during the year. On June 1, an extensive bulletin began to be broadcast from Arlington, containing surface 8 a. m. observations taken at 42 regular Weather Bureau stations and 9 aerological stations maintained by the Army, Navy, and the Bureau; and a summary of weather conditions over the United States, forecasts, and storm and hurricane warnings. Another bulletin was begun on June 10, having for its purpose a systematic broadcasting of local weather observations, wind and weather forecasts, storm and hurricane warnings, and advices relating thereto, from 26 naval radio stations on the Atlantic and Gulf coasts, in the Caribbean sea, and on the Great Lakes. These bulletins are broadcast from naval radio stations in coöperation with the Office of Communications of the Navy Department. Extensive plans were under way to systematize radio distribution of forecasts and warnings on land, also, for the benefit of agricultural and commercial interests in every State.

Upper air research continues to hold a central position in modern meteorological work. The interesting correlation coefficients between temperature and pressure at the same level in the free

air, found some years ago by W. H. Dines, have been corrected for the probable errors of observation by Chapman, who has thus raised these coefficients to remarkably high values, finding perfect correlation (direct proportionality) at 8 km. for January–March, and at 4 and 6 km. for April–June. In spite of this evidence, C. K. M. Douglas maintains that the temperature variations in the upper air are largely the result of the passage over the place of observation of different supplies of air, the temperature of which is mostly dependent on the place of origin—the temperature is low if the current originated far to the north, even though it has curved round a depression and arrived from the southwest. His studies strongly support Bjerknes' theories of the structure of cyclones.

A continuation of the researches of Birkeland, Störmer, Vegard, and Krogness on auroras confirms the theory that the aurora represents the passage through the earth's atmosphere of electrical rays, coming, presumably, from the sun; Vegard's latest view is that these rays are streams of beta (negative) particles. There are two levels of maximum frequency of the lower limit of the aurora—100 and 106 km. The results have, incidentally, been utilized in new studies of the density, composition, etc., of the atmosphere at great heights; Chapman concludes that hydrogen is totally absent in the high upper atmosphere. The great sunspot group which appeared in May was for several days accompanied by auroras, and by violent electric and magnetic disturbances on the earth. The magnetic disturbances, of an exceptional character, reached a climax the night of May 14–15. The persistence and size of the short period oscillations, superposed on the changes having a more or less persistent direction for a considerable time, were remarkable, and this characteristic was shared to a quite exceptional extent by the vertical component. The Rev. Cortie concludes that the detailed comparison of the solar outburst and the magnetic disturbances favors the theory of divergent streams of particles from the solar focus of activity, which spread into clouds that are encountered by the earth. Auroras were reported from a number of places in England, northern and central Europe, and westward over the Atlantic, across the United States, and far over the Pacific, reaching as far south as Apia, Samoa. The display of May 14–15 in the United States was exceptionally noteworthy in two particulars: (1) its accompanying earth currents caused the greatest demoralization to telegraphic communication ever recorded; and (2) it was seen in extreme southern latitudes, with all the brilliance usually observed in the north. Radio communication appeared not to be hindered.

An interesting study, by G. C. Simpson, of the southwest monsoon, should serve to clarify ideas concerning this phenomenon. It has been held that the southwest monsoon owes its origin to the great difference of temperature which exists during the summer months between the heated land surface of India and the surrounding oceans, the general idea being that the warm air over the land rises, and damp air from the sea flows into India to take its place, thus giving rise to the strong southwest winds, the rainfall being due to the cooling of the air as it rises over India. Yet the temperature over India is much higher in May before the monsoon sets in than it is during the monsoon itself; and the temperature is higher in

years of bad monsoon than in years of good monsoon; also, the part of India which has the highest temperature and the lowest pressure is a region of practically no rainfall throughout the monsoon. The true explanation can only be obtained by taking a wide view of the weather conditions over large parts of the earth's surface during the summer of the northern hemisphere: the southwest monsoon winds are in reality exceedingly complex phenomena, and are a relatively small part of a general circulation of the atmosphere caused by a region of high pressure over the south Indian ocean and a region of low pressure which extends over the whole of central Asia. The great air streams of this circulation would probably sweep right across India to their goal in central Asia without producing much rainfall if it were not for the unique distribution of mountains around India; these mountains catch the air in a kind of trap, out of which there is no escape except by ascension; the humid air, which begins to form rain as soon as it rises even 500 feet, is forced to rise between 10,000 and 20,000 feet, and heavy rains consequently occur over the greater part of the Indian area.

Applied meteorology continues to flourish. Increased use is being made of various forms of weather insurance; the great value of meteorology to the aeronaut was strikingly illustrated in the national and international balloon races of 1921. Thunderstorms can now be recorded by radio-direction finders, and hence these disturbances easily avoided in air navigation. Attempts by the British Meteorological Office at forecasting for a period of a fortnight have met with encouraging success.

Over large portions of the northern hemisphere, the summer of 1921, as well as the preceding winter, was a period of abnormally warm weather. In the United States and Canada, this period covered the eleven months September, 1920, to July, 1921, and was marked by three distinct periods of maximum warmth, the high temperatures in some cases extending to considerable heights in the atmosphere. The most pronounced disarrangements of normal temperature and precipitation accompanied corresponding variations of the normal pressure systems, and were no doubt due to the latter, but the cause of the abnormal pressure distribution remains a riddle.

An independent Weather Bureau has been created for Brazil, with Dr. J. de Sampaio Ferraz as first director. This "Directoria de Meteorologia" is under the Brazilian Department of Agriculture. At the close of 1920, the "Bureau Central Météorologique de France" was merged with the military meteorological services of that country, the whole becoming the "Office Météorologique National," under the direction of Col. Delcambre. A unified service now exists in Spain, the "Servicio Meteorológico Español;" Señor Juan Cruz Conde is the director. A meteorological station has been established by Norway at Jan Mayen in the Greenland sea.

The American Meteorological Society has continued to prosper, and is now well established. The Scottish Meteorological Society was merged into the Royal Meteorological Society in January.

Necrology.—Wilhelm Trabert, ex-director *Zentralanstalt für Meteorologie und Geodynamik*, Vienna, and professor of cosmical physics at the University of Vienna, February 24; G. St. Murat,

ex-director of the *Meteorological Institute of Roumania*, January 12; Julius von Hann, acknowledged to be the world's leading meteorologist, ex-director *Zentralanstalt für Meteorologie und Geodynamik*, Vienna, author of the standard books on meteorology and climatology, and long editor of the *Meteorologische Zeitschrift*, October 1; Luis Garcia y Carbonell, director of the Cuban meteorological service, October 11; Señor Tomás de Azcarate, for 18 years director of the San Fernando *Instituto y Observatorio de Marina*, January 25.

Books.—A. E. M. Geddes, *Meteorology*, London; J. W. Redway, *Handbook of Meteorology*, New York; C. Kassner, *Gerichtliche und Verwaltungs-Meteorologie*, Berlin; G. Hellman, et al., *Klima-Atlas von Deutschland*, Berlin; M. M. Welch, *Bibliography on the Climate of South America*, Washington, D. C.

METHODIST EPISCOPAL CHURCH. The YEAR BOOK for this denomination gives a total full and preparatory membership of 4,471,673 in 1921. Ministers in full connection numbered 19,166, with 1894 on trial and 15,798 local preachers on charges. Effective Bishops number 37. There were 36,137 Sunday schools having an enrollment of 4,626,642 and 397,575 officers and teachers. The value of the 29,461 churches is estimated to be \$274,066,926; parsonages number 15,417 with estimated value of \$53,071,317. These figures include affiliations of the Methodist Episcopal Church in the United States in Denmark, Finland, Korea, China, Norway, Germany, Sweden, Switzerland, Italy, Mexico, Philippine Islands, and several countries in South America. In addition the denomination maintains missions in Austria, Bulgaria, Jugo-Slavia, Africa, Netherlands, Indies, Porto Rico, Rhodesia, South Florida, France, Russia, Alaska, Hungary, Utah, Hawaii, and among the Southern Swedish, Pacific Swedish, Latin-American, Pacific Chinese and Japanese, Baltic and South American peoples.

This denomination with all its branches is the second largest in the United States. The branches are treated separately and statistics will be found under their respective headings. The largest and original denomination is the Methodist Episcopal Church. Statistics of 1920 for its Spring and Fall Conferences and Missions, give a total church membership of 4,409,703, or an increase of 1,479,284 in twenty years. Pastors with charges numbered 15,880, with 29,823 church buildings, and total property valuation of \$257,198,324. There were reported 38,871 Sunday schools in 1920, an increase of 3847 since 1900. The enrollment was 4,417,734 pupils, or an increase of 1,731,634 for the same period.

The Epworth League is the largest society of the denomination and was evolved in May, 1889, by the union of five young people's organizations. In 1919 there was a total enrollment of 504,923 senior members and 207,144 junior members. Membership in the United States alone counted 282,501 senior members and 90,997 junior members. It is reported that 1921 was marked by considerable growth of the organization and that the increase of chapters for the first eleven months passed the 2600 mark.

Missionary work is carried on by the Board of Foreign Missions and the Woman's Foreign Missionary Society of the denomination in Latin-America, Japan, Korea, China, India, Malaysia,

Philippine Islands, and several countries in Africa and Europe. In 1920 missionaries in the field for both organizations totaled 1708, a gain of 159 over the previous year. Of these workers, 494 are stationed in China and 452 in India and Burma. In addition to these the evangelistic staff includes 2759 ordained native preachers and 6288 unordained native preachers and exhorters. A total of 697,436 native Christians make up the Christian community in these mission lands, an increase of 36,153 members and 23,889 baptized children over 1919. Churches number 2752, an increase of 123. The number of Sunday schools is 9833, with 452,047 scholars—both increases over the previous year. The denomination maintains 2827 secular schools of all grades, including 18 colleges and universities, 64 theological and Bible Training Schools, with total enrollment of 116,000.

The name of the Freedmen's Aid Society, which carries on educational work among the negroes, was changed during 1921 to the Board of Education for Negroes. Eighteen institutions are maintained with a staff of 320 professors and instructors, and student enrollment of 6597.

The Board of Education of the church sponsors in an advisory capacity 131 educational institutions. These include 43 colleges and universities, 32 professional and graduate schools, 36 secondary schools for white students, and 19 schools for negroes. Among the more important may be mentioned De Pauw University, Indiana; Northwestern University, Illinois; University of South California; Ohio Wesleyan University; Boston University; Syracuse University; and Wesleyan University. The productive endowment is \$34,374,749 and their annual income \$7,168,316. The combined student body numbered 51,190 and the alumni 119,834. A Student Loan Fund is maintained by the Board from which needy students may obtain financial assistance to complete their courses. During the past year 2176 loans were made, aggregating \$218,306.50. The church also maintains 89 deaconess homes, 24 deaconess hospitals, and 10 deaconess training schools. Besides these there are 51 regular hospitals, 39 children's welfare institutions, and 39 homes for the aged. The Methodist Book Concern is the publication house for the denomination. It issues many foreign as well as English periodicals and magazines during the year. Headquarters are 150 Fifth Avenue, New York, and branches are maintained in Boston, Detroit, Pittsburg, Kansas City, San Francisco, and Portland, Ore.

METHODIST EPISCOPAL CHURCH, SOUTH. Statistics for this branch of the Methodist Episcopal Church show in 1921 2,254,752 members, 7664 traveling preachers, and 4701 local preachers. Sunday schools numbered 16,205, having 145,244 officers and teachers and 1,608,871 scholars. There were 146,113 Epworth League members reported. There were 17,251 churches with valuation of \$90,018,042 and 5754 parsonages with valuation of \$18,741,849. Missions are maintained in Brazil, Mexico, China, Japan, Cuba, Korea, and the Congo. For purposes of administration the denomination is divided into fifty conferences and 330 districts. Sixteen Bishops comprise the College of Bishops which is the executive body of the church. Educational, missionary, and relief work is carried on by committees appointed by the College of Bishops. The principal periodicals are the *Methodist Review*, and the *Christian Advocate*.

METHODISTS, CANADIAN. Five organizations in Canada similar in their beliefs, the Methodist Episcopal Church, the Wesleyan Methodist Church, the Primitive Methodist Church, the Methodist New Connection Church, and the Bible Christian Church, united to form the Methodist Episcopal Church in Canada in 1883. Besides Canada and Newfoundland, the denomination has churches in Bermuda affiliated with it. The organization and administration of the church is effected through 12 conferences which are further subdivided into many districts. The conferences are as follows: Toronto, London, Hamilton, Bay of Quinte, Montreal, Nova Scotia, New Brunswick and Prince Edward Island, Newfoundland, Manitoba, Alberta, Saskatchewan, and British Columbia.

A total membership of 400,789 was reported in 1921. Ministers numbered 2536, of which 2240 were in full connection and 296 on probation. In 1919 there were 3745 churches, 3600 Sunday schools with enrollment of 415,421 pupils and 41,362 officers and teachers. The denomination has supervision over 17 colleges and universities, of which may be mentioned Victoria College, Toronto, Wesleyan Theological College, Montreal, Wesley College, Winnipeg, Alberta College, Edmonton, and Regina College, Regina. There were 6968 students registered in 1921. The missionary work of the church is conducted by the Missionary Society and the Women's Missionary Society. Foreign fields include China and Japan. *The Christian Guardian* and *The Wesleyan* are the chief periodicals of the denomination.

METHODISTS, COLORED. Twenty conferences constitute this branch of the Methodist denomination, which was originally a part of the Methodist Episcopal Church, South. Enrollment in its churches in 1921 was 354,063 members, an increase of 3509 over the previous year. There were 1915 pastors, and 98 district superintendents.

METHODISTS, WESLEYAN. This is the principal branch of the Methodists in Great Britain and Ireland. English Methodism was first introduced with the Wesleyan movement in 1729 at the University of Oxford and in 1739 the first Methodist Society of England was formed. The mother church of all is the Wesleyan Methodist Church, which held its one hundred and seventy-seventh Conference in July. In 1920 there were 862,808 communicants in Great Britain. In 1921 there were 464,945 members; 2520 ordained ministers; 18,409 lay preachers; 8533 churches; 850,871 Sunday school pupils. The publishing house of this branch is at 25 City Road, London, E. C.

The Methodist Church of Ireland in June held the one hundred and fifty-first session of the Conference. Statistics for 1919 give 27,226 members and probationers; 258 ordained ministers; 622 lay preachers; 488 churches; 329 Sunday schools with 21,930 pupils and 2149 officers and teachers. Foreign missions had 204,719 members and probationers; 632 ordained ministers; 8107 lay preachers; 3707 churches, 2351 Sunday schools with 142,403 pupils and 9168 officers and teachers. For the same year, the French Conference reported 1433 members, 31 ministers, and 62 churches. The South African Conference had 143,897 members and probationers; 294 ordained ministers; 4627 lay preachers; 4280 churches; 904 Sunday schools with 42,582 pupils and 3106 officers and teachers.

PRIMITIVE METHODIST CHURCH. This branch, called originally "Camp Meeting Methodists" began in 1810 and since 1824 has made steady progress. According to the latest available statistics there were 206,038 communicants in Great Britain; 1105 ordained ministers; 4663 churches; 419,245 Sunday school pupils.

UNITED METHODIST CHURCH. This branch is composed of the New Connection, the Bible Christians, and the United Methodist Free Churches and was formed in 1907. Latest available figures: 2737 churches; 156,658 members; 609 ministers; 270,553 Sunday school pupils.

WESLEYAN REFORM UNION CHURCH. This branch separated from Wesleyan Methodism in 1850 and was organized as a separate body in 1859. It is one of the smaller branches that has not yet been absorbed. Churches, 197; members, 8317.

INDEPENDENT METHODIST CHURCHES. These began in 1796 and united with other societies in 1806. The one hundred and fifteenth annual meeting was held in June, 1920. Churches, 145; members, 8770.

AUSTRALASIAN METHODIST CHURCH. This denomination dates its beginning from 1812; its first conference was held in 1855. In 1920 there were 179,215 communicants in Australasia. Members and probationers in 1919 totaled 179,215; ordained ministers, 1102; lay preachers, 9074; churches, 4450; Sunday schools, 4000, with 210,000 pupils and 25,578 officers and teachers. It maintains publishing houses in Sydney, Adelaide, Brisbane, and Perth.

NEW ZEALAND METHODIST CHURCH. Statistics for 1920 show 25,180 communicants. In 1919 members and probationers numbered 25,180; ordained ministers, 181; lay preachers, 925; churches, 468; Sunday schools, 422, with 29,035 pupils and 3162 officers and teachers.

JAPAN METHODIST CHURCH. Statistics for 1918 for this denomination give 15,364 members and probationers; 241 ministers; 245 churches; 340 Sunday schools with 28,438 pupils and teachers.

Methodism is also represented in the following countries, the figures being for the latest available membership: Austria-Hungary, 955; Bulgaria, 691; Denmark, 4092; Finland, 1611; France, 507; Italy, 4132; North Germany, 14,760; Norway, 6132; Russia Mission, 452; South Germany, 14,005; Sweden, 16,454; Switzerland, 10,597.

International statistics show that in America Methodist communicants number 8,358,230; in Great Britain and Australasia, 1,473,877, making a grand total of 9,832,107, as against 8,768,616 in 1910, an increase of more than a million during this period. An estimate of the Methodist population in the world shows that in the Western Section, members, probationers, and adherents totaled 24,253,805; in the Eastern Section, 7,369,385, making a grand total for the world of 36,622,190 as against 32,728,547 in 1910, or an increase of 4,000,000 persons. See also **WESLEYAN METHODIST CONNECTION IN AMERICA**.

METROPOLITAN MUSEUM OF ART CONCERTS. See **MUSIC, Orchestras**.

METROPOLITAN OPERA HOUSE. See **MUSIC, Opera**.

METTERNICH, PAULINE. Wife of the Austrian diplomat Prince Richard Metternich, died in Vienna, September 28. She was born in 1837.

Thoroughly convinced of the genius of Wagner, she used her great influence with Napoleon III to bring about the first performances of *Tannhäuser* in Paris (1861). She published a volume of memoirs, *The Days that are no More*, which contain numerous references to Wagner and Liszt.

MEXICO. A federal republic lying between the United States and Central America. Capital, Mexico.

AREA AND POPULATION. The area is estimated at 767,798 square miles or 25.25 per cent of the area of the United States; population, according to the census of 1920, 15,115,612, estimated in 1912, 15,501,684; chief cities with their populations in 1910: Mexico, 571,066; Guadalajara, 119,468; Puebla, 96,121; Monterey, 73,528; San Luis Potosi, 68,022. It is divided for administrative purposes into 28 states, a federal district, and two territories.

PRODUCTION. The agricultural resources are rich and varied, products of temperate, tropical, and semi-tropical zones being often found in a comparatively small area, owing to variation of altitude. The cultivated area has been placed at 13,027,500 acres; pasture lands, 120,444,200; and forests, 43,933,200. The chief products are: Corn, cotton, henequen, wheat, coffee, beans, sugar, molasses, and spirits. The number of productive oil wells in 1919 was 343, and the production in that year was estimated at 1,337,012 barrels a day. In 1919 the oil production amounted to 92,402,055 barrels. Other minerals are: Lead, copper, silver, gold, zinc, antimony, tin, mercury, arsenic, tungsten, molybdenum, manganese, graphite, and coal, the last named has only been produced in the state of Coahuila. The output of the six principal metals during 1920 was as follows: Gold, 23,370 kilos; silver 1,979,872 kilos; copper, 46,056,900 kilos; zinc, 13,363,057 kilos; antimony, 1,572,379 kilos; lead, 121,434,066 kilos.

ECONOMIC CONDITIONS The standards of living were little affected in Mexico by the World War compared with those for certain European countries. Civil disturbances affected standards frequently and widely, sometimes as a direct result of military operations, but more by the economic results of the depreciation of the paper currency from 1914 to 1917 and by the impairment of the morale of the workers. Real wages advanced but little if at all since 1910, as increases were accompanied by increase in the cost of living, particularly for housing, clothing, and tools of workmen. Thus while in 10 years average paid wages, in terms of gold, approximately doubled, living costs increased by 150 to 250 per cent, as shown by the index published by the government. During the year, the normalization of prices was proceeding more slowly and more irregularly than in the United States and local manufacturers were prosperous. Labor was much cheaper in Mexico than in the United States, but readjustment was taking place in most lines. Unemployment was serious. There remained danger of disaster from radical agitation, but it was diminishing. Production costs have not yet been fully adjusted. All trade was dull, pending improvement in world commodity markets and greater confidence in the maintenance of stable government. Industrial unrest was reported toward the close of the year owing chiefly to the failure of the government to

settle the land question which affected the farmers and owing also to the new policy carried out under the constitution in respect to the regulation of the hours, wages, and conditions of labor. According to some authorities the chief cause was the difficulty of readjustment under the new economic policy which the government was seeking to apply. There was an increasing opposition to the strict application of the agrarian law. There was a movement for a policy of federal labor legislation to prevent the bad results of the legislation in certain of the states. Toward the close of the year imports were slowly decreasing and prices were declining. Exports of oil were decreasing.

COMMERCE. The imports and exports for 1918, classified, and the totals for 1919 are shown in the following table from the *Statesman's Year Book of 1921*:

Imports	Mexican dollars
Animal products.....	19,981,871
Vegetable products.....	37,985,996
Mineral products.....	28,808,919
Textile and other manufactures.....	28,853,895
Chemical products.....	10,638,642
Spirituos liquors.....	1,237,233
Paper and accessories.....	3,070,472
Machinery and apparatus.....	11,251,817
Vehicles.....	6,399,459
Arms and explosives.....	2,232,195
Sundries not specified.....	14,019,536
Total (1918).....	194,470,035
Total (1919).....	265,178,706

Exports	Mexican dollars
Animal products.....	19,569,701
Vegetable products.....	126,937,322
Mineral products.....	213,932,342
Manufactured products.....	4,866,086
Total (1918).....	367,305,451
Total (1919).....	424,462,471

The exports consist of: metals, including silver, gold, copper, and lead; cattle; raw materials; and agricultural products. Besides metals, the most important manufactured products are sugar and cotton goods. The chief raw materials exported are: Petroleum, fibres, hides, coffee, vanilla, and chicle. The import trade after the armistice in November, 1918, showed great activity, owing to the necessity of replenishing stocks reduced by war trade conditions. The demands of importers steadily increased in 1920 at which time the greater part of the imports came from the United States, but later European goods began to arrive, especially from Germany. Most of the German products imported came at first from prewar stocks, but latterly there was an increase of electrical equipment, and of stationery, print paper and wall paper in which the Germans offered advantageous prices.

FINANCE. The foreign debt of Mexico, as given by the secretary of the treasury in 1921, amounted to 380,333,625 pesos. The internal debt was 181,850,900 pesos, and the interest on the various state debts, which by special agreement the federal government was to pay, totaled 1,341,992 pesos. The total indebtedness of Mexico, therefore, was stated as 536,523,522 pesos. Details for 1921 were not available, but the classification

according to the statement of the secretary of the treasury, Dec. 31, 1920, was as follows:

	Debits	Amount
Foreign debt:		
Municipal loan, 5 per cent, 1889.....		13,525,815
Consolidated, 5 per cent, 1899.....		97,206,829
4 per cent gold, 1904.....		74,312,801
4 per cent gold, 1910.....		101,898,810
Total.....		286,944,255
Internal debt:		
Consolidated, 3 per cent.....		42,028,800
Redeemable, 5 per cent, series 1 to 5.....		94,318,500
Total.....		136,347,300
State debts:		
Dredging at Vera Cruz.....		831,200
Dredging at Tampico, series 1 and 2.....		1,538,100
Dredging at Masatlan.....		466,700
Dredging at Puerto Mexico, Vera Cruz.....		664,000
Total.....		3,500,000
Grand total.....		426,791,555

The question of restoring Mexican credit was prominently before the public throughout the year. The government wished to reestablish its financial position abroad by paying the arrears of interest on the external bonds. The matter was under discussion among international bankers including Mr. Thomas W. Lamont of J. P. Morgan and Company who made a visit to Mexico, October 4, for the purpose of considering the necessary measures. He was chairman of the International Committee of Bankers on Mexico appointed two years before to represent investors in Mexican bonds, and he also was asked to represent the British, French, Dutch, and Belgian bankers on this committee. The interest on Mexican external bonds had not been paid since 1914 and amounted to \$50,000,000, the total bond issue being about \$190,000,000. Many of the bondholders were residents of France and Germany. Conferences began between Mr. Lamont and Secretary de la Huerta, October 6. One of the points to be settled was whether Mexico would assume the debt incurred by the government of Victoriano Huerta which had been refused by both the preceding governments. The holders of this loan were for the most part French citizens. The definite results of this and other conferences on the subject were not known at the close of the year, but the following summary of financial conditions at that time was supplied by the United States Bureau of Foreign and Domestic Commerce:

(1) A refunding of perhaps \$75,000,000 of defaulted bonds, plus some \$30,000,000 of accrued interest, a funding of foreign damage claims of at least \$50,000,000, and a substantial increase of the net revenues of the government, to provide service on all this, were essential for the near future. The currency system was dangerous in its rigidity, but steps were being taken to reform it.

(2) A practically complete new banking system had to be built, and it was hoped to insert in it desirable features of the American reserve system.

(3) Under existing currency and banking systems the question of foreign exchange entered little into commercial questions.

RAILWAYS. The year 1921 was an important one for the railways of Mexico, and this country

stood almost unique among the nations of the world in active advances and rehabilitation. The situation was handled with energy, so that interchange relations with the United States lines were reestablished and traffic conditions at the border relieved. As early as February, Francisco Perez, then director general of the Mexican railways, borrowed locomotives in the United States, securing ten from the St. Louis Southwestern, nine from the Illinois Central, eight from the Missouri, Kansas, and Texas, three from the Gulf Coast lines and some from the International and Great Northern. At this time there were 581 locomotives in service and 161 awaiting repairs. These borrowed locomotives helped to make a beginning in restoring regular service and traffic, and shortly after they were secured new locomotives were ordered in the United States. These during the year included 35 Mikado, 20 Pacific, 40 consolidation and 20 narrow gauge locomotives ordered from one company, and 20 heavy consolidation and 7 heavy Mikado locomotives, ordered from another. No railway system in North America could rival these orders in amount during the year. The same conditions prevailed in regard to cars as there were but 13,262 in service as compared with 22,000 before the revolution. There were borrowed 200 tank cars and efforts were made to increase rolling stock in this field also. During 1921 the National Railways of Mexico built 102 miles of new first track of which 23.61 miles was from Llano Grande to El Salto, and 17 miles from Los Bancos to Cerro de la Cruz, in the state of Durango, while in the state of Coahuila, 31.67 miles were built from Zaragoza to Santo Tomas, and 30.14 miles from La Vibora to El Oro. Other important work under construction was the building of new lines from El Oro to Sierra Mojada, Coahuila, 9.32 miles; and from Santo Tomas to Villa Acuna, Coahuila, 28 miles. Surveys were being made for a new line from El Salto to Masatlan, 165 miles. At the end of the year a reinforced concrete passenger station at Durango, to cost \$250,000, was 85 per cent completed, while a new station was under way at Saltillo. An important reduction of grade between Saltillo and Carneros, in the line between Mexico City, Mex., and Laredo, Texas, was being made and the changing of the old grade of 2 per cent, to a new grade 1.05 per cent, at a cost of \$860,470, was 35 per cent completed.

The National Railways of Mexico during the year gave a contract for the completion of the short line of that system to extend from Tamos, on the Tampico-San Luis Potosi division, to a connection with the Hidalgo and Northwestern division, near Honey. This Tampico-City of Mexico short line, as it is called, dated back before the revolution and about 50 miles of grade and track were finished before work had to be stopped. From a traffic and development standpoint this short line was considered one of the most important railroad projects to be undertaken in Mexico, as it would result in the reduction of the distance between the port of Tampico and the capital by about two hundred miles. Furthermore the proposed route not only would cross a region very rich in agricultural and mineral resources, but it would lead to a coastal territory with promises of oilfields. It was rumored during this year of railway activity that a contract was to be awarded for building the long proposed line between Tampico and Matamoros, near the mouth of the Rio Grande.

DEFENSE. After 1914 the army was on a war footing, and the nominal strength in 1920 was 119,000, but the actual strength was believed to be hardly more than half that number. The navy has amounted to a little more than a coast defense force, and consists of a few gunboats, five torpedo boats, two armed transports, and some smaller vessels.

GOVERNMENT. For the principal provisions of the new constitution which was promulgated, Feb. 5, 1917, see the 1917 YEAR BOOK. The executive power is vested in a president elected by direct popular vote for four years, and ineligible for reelection; and the legislative power, in a congress, consisting of a house of representatives, elected for two years by universal suffrage, at the rate of 1 member for every 6000 inhabitants, and of a senate, consisting of 58 members, 2 for every state, who are elected in the same manner. President in 1921, Alvaro Obregon, who assumed office, Dec. 1, 1920.

HISTORY

THE OIL QUESTION. The executives of American oil companies with interests in Mexico attended a meeting at Galveston, Texas, March 16, which declaring the intention of American oil interests to oppose recognition so long as Article 27 of the Mexican constitution remained unchanged. Early in the summer the Mexican government levied an export tax on petroleum, and the large American oil companies suspended production in consequence, but on September 3 an agreement was reached between them and the government, and production was resumed, September 5. The main points in this agreement as announced by the American Association of Mexico was as follows: The tax imposed by decree of June 7 of 38 cents a barrel was suspended until December; the ad valorem tax amounting to 12 cents a barrel under the decree of May 24 was allowed to stand, but was to become a tax on production and not on exportation and to be paid on oil in storage sold in Mexico; a tax on exportation at 8 cents a barrel was also agreed upon to last until December 25. The main points in the situation had been as follows: The Mexicans maintained the right to change the constitution and levy the tax. The British companies had recognized the right of Mexico to levy such a tax and paid it. They were exporting oil as before. Representatives of the American companies in these circumstances decided to visit Mexico and confer directly with the Mexican officials. The directing officers of the Standard Oil Company and other corporations left New York for Mexico City, August 24. The American Association of Mexico representing the interests of Americans who had formerly lived there, protested against this mission of the oil men, saying that a settlement of the present controversy over taxes would not be a settlement of the oil question and still less a settlement of the difficulty arising from the attitude of the Mexicans to the property rights and interests of Americans in Mexico. The State Department, however, did not interfere with the visit and the oil men on arriving at the capital began conferences with the Mexican Secretary of the Treasury, Adolfo de la Huerta, and had an interview with President Obregon, August 28-September 3. The difficulties were adjusted and the oil men signed the agreement above mentioned. The trouble had all arisen from

the celebrated Article 27 of the new Mexican constitution. A suit had been brought by the Texas Oil Company in 1919 to test the validity of that article. On August 30, a decision of this case was rendered by the Supreme Court of Mexico, which upheld the contention of the American oil companies that Article 27 could not affect private titles acquired before May 1, 1917. The decision was important as setting a precedent that the constitutional provision was not retroactive. It was believed that the principle thus established would settle many pending controversies.

THE QUESTION OF AMERICAN RECOGNITION. The question of recognition was brought to a definite point by the proposal of Secretary of State Hughes on June 7 of a treaty of amity and commerce whereby Mexico should agree to safeguard property rights that had existed before the constitution of 1917 was adopted. The Mexican government refused to accept such an arrangement, President Obregon insisting that negotiations between the two countries must be conducted on an equal footing. In the Senate opposing views in respect to the policy of the United States in withholding its recognition of President Obregon were expressed from time to time. For example, on August 15, Senator King of Utah denounced the Mexican President, declaring that it was his policy to confiscate the property of Americans and divide it among Mexicans without compensation, and this was answered by a defense of Obregon on the part of Senator Ashhurst of Arizona who said that though his State had suffered more than any other as a result of conditions in Mexico its people were strongly in favor of recognition and had petitioned the United States government to that end. Movements for recognition took place in the State legislatures of Michigan, Illinois, California, Texas, and Oklahoma. On September 1, President Obregon's message to Congress asserted the principle of no special privileges and declared that the signing of the treaty with the United States was not possible, convenient, or necessary. Mexico he said asked for recognition merely on the ground of her government's ability to fulfill its obligations and perform its functions. The questions in dispute were threefold, namely, Article 27, claims for damages, and the foreign debt. As to the damage claims they numbered 1440 and amounted to 221,331,891 pesos of which 93,965,045 were the claims of foreigners. Mexico had invited the countries concerned to form an international commission for the adjustment of damage claims during the revolutionary period of the last ten years and this had been accepted by China, Spain, and Holland. The new Mexican government had been recognized by 24 states. According to the President's message the army had been reduced to 30,000 men and the war department budget by 26,000,000 pesos. As to financial and economic conditions he said that 21 banks which had been closed under his predecessor had been reopened; that 8,000,000 pesos had been spent for the reconstruction of railways, and several more for the improvement of ports; several millions for the purchase of rolling stock and building material for national railways, etc. On August 11 a representative of the United States Department declared that the Harding administration had no intention of recognizing the new Mexican government in advance of the signing of

a treaty. At the same time he gave out a denial that the action of the American government was in any way determined by the oil influences. At the close of the year the United States government still withheld recognition and was criticised on that account by many writers in the United States. It was said that the condition imposed by our government was one that few states would submit to. It required of Mexico the formation of a treaty with the United States in advance engaging Mexico not to rob American citizens by confiscating their property or by discriminating against them in taxation. It was given out by the American State Department that the United States could not admit the argument that the Mexico Central Government could not constrain the separate Mexican states.

THE OBREGON ADMINISTRATION. The first year of the new president's administration ended, November 30. In respect to its achievements it was pointed out that the railways had been reorganized and that the port conditions had greatly improved. As to agriculture a vast area of land had been transferred from the large owners to the peasantry. The army had been reduced to 50,000 men. Among other measures commended as progressive was the plan for the building of cheap homes for workmen and their sale on easy terms. Special efforts had been made for the improvement of education, the interests of which were taking the leading place on the government programme, a new department having been formed under a secretary of education. According to Mr. Thomas W. Lamont, who had arrived in Mexico, September 13, on a mission in respect to Mexico's foreign debt, the attitude of the present Mexican government was satisfactory to American interests, indicating an intention to protect and encourage American interests in Mexico. The misunderstandings between the two republics seemed to him to be in a fair way toward settlement.

OTHER EVENTS. Riots occurred at Tampico, July 10; 2000 troops were sent to the spot, and American warships proceeded there for the protection of American property. Delegates of all interested nations were invited by President Obregon, July 13, to send representatives to constitute a permanent Mexican claims commission. The salaries of military and civil officials were reduced by decision of the president, July 26, to the extent of 10 per cent. On August 8 the Mexican congress met, the main subject before it being the revision of Article 27 which affected the oil interests of foreigners. The representatives of these oil interests were in conference with the president on August 23 in respect to the land titles and Article 27. On September 1 the Mexican president refused to negotiate a treaty with the United States for the settlement of industrial and property disputes until the present Mexican government should have been recognized by the United States. On September 13 Mr. Thomas W. Lamont, representing the interests of American bondholders, arrived in Mexico for the purpose of securing an adjustment in respect to these Mexican bonds on which payment had defaulted. In November it was announced that France, Great Britain, Italy, Spain, and the Netherlands had accepted Mexico's invitation to appoint representatives on the mixed claims com-

mission for the determination of damages due foreigners on account of losses sustained by them in the revolution. It was suggested toward the end of the year that the American oil men should pay their taxes, amounting to about 22,000,000 pesos, in Mexican government bonds purchased in New York. On November 14 a bomb wrecked the shrine of the Virgin of Guadalupe, the patron saint of Mexico, one of the most famous shrines in the country, and a "pilgrimage of atonement" from among the people of Mexico City took place, November 19. At the close of the year, the Social Democratic bloc in the Chamber of Deputies showed a majority over the administration party, the vote being 122 against 118. General Francisco Reyna, the leader of revolutionary movements during several years past, was executed at Nogales, December 26, on the charge of attempting to prepare another revolt. The Vatican, which had not been represented in Mexico after 1910, sent a special delegate to the president, December 21. In certain parts of the country unemployment had reached a severe stage toward the close of the year. In Pueblo union workmen requested the authorities on December 24 to grant them lands on which food might be raised.

MIAMI BEACH, FLA. See MUNICIPAL GOVERNMENT.

MIAMI FLOOD PROTECTION. See FLOODS AND FLOOD PROTECTION.

MICHIGAN. POPULATION. According to the report of the census of 1920, there were 3,668,412 residents in the State, Jan. 1, 1920, as compared with 2,810,173 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	1,703,000	66,417,000	\$31,880,000
	1920	1,706,000	66,534,000	54,558,000
Oats.....	1921	1,544,000	28,101,000	10,116,000
	1920	1,485,000	58,806,000	28,227,000
Rye.....	1921	642,000	8,346,000	5,842,000
	1920	670,000	9,849,000	12,804,000
Hay.....	1921	2,988,000	12,994,000	38,671,000
	1920	2,842,000	13,415,000	71,137,000
Potatoes.....	1921	340,000	27,200,000	25,940,000
	1920	345,000	36,225,000	33,327,000
Barley.....	1921	235,000	4,112,000	2,344,000
	1920	255,000	6,630,000	5,768,000
Wheat.....	1921	897,000	14,072,000	14,634,000
	1920	1,008,000	15,383,000	25,844,000

¹ Tons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Michigan was issued by the Bureau of the Census. A comparative summary for the State, 1919 and 1914, is shown on page 452.

FINANCE. The bonded debt of the State at the close of 1921 was \$53,550,000. The total revenues of the State government for the year ending Dec. 31, 1921, were \$49,901,044.41. The legislative appropriations for the fiscal year beginning July 1, 1921, totaled \$20,441,333.79. There was not a single failure of a National Bank, or a State Incorporated Bank, in Michigan in 1921. A few small private banks, however, failed.

LEGISLATION. The State legislature convened in biennial session, January 3, and one of the first measures it approved was for the submission of a

	Census—		Per cent of
	1919	1914	increase ¹ 1914-19
Number of establishments.....	8,285	8,724	—5.0
Persons engaged in manufactures.....	547,925	320,611	70.9
Proprietors and firm members.....	6,062	7,725	—21.5
Salaries employees.....	71,030	41,798	69.9
Wage earners (average number).....	470,833	271,090	73.7
Primary horsepower.....	1,189,356	764,183	55.6
Capital.....	\$2,337,003,000	\$869,143,000	168.9
Services.....	784,637,000	250,525,000	213.2
Salaries.....	148,961,000	68,273,000	118.2
Wages.....	635,676,000	182,253,000	248.8
Materials.....	1,901,089,000	592,801,000	220.7
Value of products.....	3,447,984,000	1,086,162,000	217.4
Value added by manufacture (value of products less cost of materials).....	1,546,895,000	493,361,000	213.5

¹ A minus sign (—) denotes decrease.

constitutional amendment to authorize a bond issue of \$30,000,000 to pay bonuses to Michigan service men and women of the World War. On election day in April the amendment was ratified by a majority of 285,557. From this bond issue bonuses aggregating about \$25,000,000 had been paid up to the end of the year.

The incoming Governor, Alex. J. Groesbeck, elected in November, 1920, and inaugurated January 1, in his first message to the legislature recommended a comprehensive plan for consolidating and centralizing State governmental authority. The legislature passed bills to carry out his recommendation which consolidated 33 departments, commissions, and bureaus into five departments and created a State Administrative Board composed of himself and six others, the Secretary of State, State Treasurer, Auditor-General, Attorney-General, Superintendent of Public Instruction, and State Highway Commissioner. This board has plenary supervision over the entire State government, meeting weekly, and being in the broad sense the governor's cabinet.

The regular session closed before a law could be enacted providing methods for paying soldiers' bonus claims authorized by the constitutional amendment ratified in April, so a special session was convened for that purpose. Then developed a deficiency in State appropriations which necessitated a second special session at which was enacted a law for an annual license fee ranging from \$50 to \$10,000 on all corporations, and which brought a little over \$5,000,000 into the State treasury.

The legislature at the regular session also approved a constitutional amendment to be submitted to the voters on general election day in November, 1922, to sanction the enactment of a State income tax law.

Also the legislature increased the fractional mill tax for the University of Michigan from which is derived a part of the income for the maintenance of the university, from three-eighths to three-fifths.

ELECTIONS. A general State election was held in April, 1921, for the election of three justices of the Supreme Court, two Regents of the University of Michigan, two members of the Michigan Agricultural College Board, a Superintendent of Public Instruction, a member of the State Board of Education, and a State Highway Commissioner. The Republican candidates were elected by pluralities ranging from 308,111 to 321,763. The candidates elected were: Supreme Court Justices, Joseph B. Moore (full term); Joseph H. Steere, (full term); Howard Weist, (short term). Justice

Howard Weist was elected to fill vacancy caused by the death of Justice Flavius L. Brooke.

Regents, University of Michigan, Victor M. Gore; Walter H. Sawyer. Members, Michigan Agricultural College Board, John A. Doelle, Melville B. McPherson. Superintendent of Public Instruction, Thomas E. Johnson; Member State Board of Education, Frederick E. Jeffers; State Highway Commissioner, Frank E. Rogers. Professor David Friday, of the Department of Economics, University of Michigan, was, in 1921, elected President of the Michigan Agricultural College to succeed Frank L. Kedzie. Professor Friday was to take up his duties as President of the Agricultural College in April, 1922.

OTHER EVENTS. The State Highway Department, in 1921, completed 914 miles of highways, which, added to the roads completed by districts, counties, and townships approximate a total of 9520 miles of highways that have been rebuilt since the State, 15 years ago, began improving highways, or more than one-eighth of the road mileage of the State Roads rebuilt but not yet accepted will bring the total mileage of improved roads up to about 10,000. The total highway construction work for the year including State, district, county, township, and Federal aid represented expenditures of around \$25,000,000. The State Board of Equalization met in August and fixed the assessed valuation of the State at \$5,000,000,000. This valuation does not include railroad companies, telegraph and telephone companies and some other classes of public utilities.

OFFICERS. Governor, Alexander J. Groesbeck; Lieutenant-Governor, Thomas Read; Secretary of State, Charles J. Deland; State Treasurer, Frank E. Gorman; Auditor General, Oramel B. Fuller; Attorney-General, Merlin Wiley; Superintendent of Public Instruction, Thomas E. Johnson; State Highway Commissioner, Frank F. Rogers; Commissioner of Insurance, Leonhard T. Hands; Commissioner of Health, R. M. Olin, M.D.; Commissioner of Banking, Hugh A. McPherson, Harry O. Mohrmann, Deputy; Commissioner of Public Safety, Roy C. Vandercook; Commissioner of Agriculture, H. H. Halladay; Director of Conservation, John Baird; Director of Welfare, Marl T. Murray.

JUDICIARY. Supreme Court: Chief Justice, Joseph H. Steere; Associate Justices, Howard Weist, Grant Fellows, John W. Stone, George M. Clark, John E. Bird, Nelson Sharpe, Joseph N. Moore.

MICHIGAN, UNIVERSITY OF. A co-educational State institution of the higher learning at Ann Arbor, Mich.; founded in 1837. The students

enrolled in 1921 were 10,623 and the faculty numbered 633. President, Marion Leroy Burton, Ph.D., LL.D.

MIDDLEBURY COLLEGE. A nonsectarian co-educational institution of higher learning at Middlebury, Vt.; founded in 1800. In the fall session of 1921 there were 494 students enrolled of whom 246 were men and 248 women. In the summer session there were 388 enrolled. The teaching staff numbered 38. The productive funds were about \$1,500,000 and the income about \$200,000. The library contained 50,000 volumes. President, Paul Dwight Moody.

MIDDLE CONGO. See FRENCH EQUATORIAL AFRICA.

MIFFLIN, GEORGE HARRISON. Publisher, died, April 5. He was born at Boston, Mass., May 1, 1845; graduated at Harvard in 1865; and associated himself with the publishing house of Hurd and Houghton (1867) which afterwards became the firm of Houghton, Mifflin and company. After 1908 he was president of the company, and he was also president of the Riverside Press.

MIFFLIN, LLOYD. Author, died, July 16. He was born at Columbia, Pa.; studied painting at first under his father, J. Houston Mifflin, portrait painter, and afterwards in Germany and Italy. He exhibited paintings in the United States, but having failed in health, ceased to apply himself to painting, and became a verse writer, writing especially sonnets, of which he published nearly five hundred. Among his poems may be mentioned: *At the Gates of Song* (1897); *The Slopes of Helicon and Other Poems* (1898); *Echoes of Greek Idyls* (1900); *Castalian Days* (1903); *The Fleeting Nymph and Other Verse* (1905); *Toward the Uplands* (1908); *Flower and Thorn* (1909); and *As Twilight Falls* (1916). A collection of his sonnets was published in 1905.

MILFORD HAVEN, MARQUIS OF (ADMIRAL LOUIS ALEXANDER MOUNTBATTEN; formerly PRINCE LOUIS OF BATTENBERG). Former British First Sea-Lord of the Admiralty, died, September 11. He was born at Gratz, Austria, May 24, 1854; and was related to the British royal house. He was naturalized as a British subject, and entered the Royal Navy in 1868. He served with honor in the Egyptian war, 1882; became a rear-admiral in 1884; and was commander-in-chief of the Atlantic fleet from 1908 to 1910. At the request of the king he gave up his German titles in 1917, and assumed the surname of Mountbatten as the equivalent of Battenberg. He retired with the rank of admiral in 1919.

MILITARY ACADEMY, UNITED STATES. See UNITED STATES MILITARY ACADEMY.

MILITARY PROGRESS. GENERAL. The outstanding element of the year's military progress was undoubtedly the so-called Disarmament Conference. (NAVAL PROGRESS AND WAR OF THE NATIONS.) For although at the end of the year the deliberation of this Conference had as yet not formally borne upon land armies, yet it was plain that these would be affected as progress was made in other directions, for the obvious reason that to-day more than ever do all the elements of national defense or offense form an interlocking system involving both the sea and the land. It is pertinent, therefore, to take up some aspects of this conference in order to set them over

against certain aspects of future wars. We say future wars advisedly, because no one, not even the Conference, can believe that future war is impossible. Indeed the country has been warned that the purpose of the Conference is not to abolish war, but the altogether more modest purpose of making war difficult, so that as a consequence there will be time to think before actually opening hostilities.

It is a commonplace that no other war had ever made so great a draft upon the mechanical and chemical (see CHEMISTRY, INDUSTRIAL) spirit of its time as the one closed now three years ago made upon our time. And it is natural, if not inevitable, to assume that the next war, if unhappily there should be one, will reveal this mechanical and chemical development carried to a pitch as yet barely dreamt of. In fact, notes of warning were sounded during the year. Of course it is hazardous, if not impossible, to venture upon prophecy but in certain quarters at least, it is believed that aviation (see AERONAUTICS) will play a tremendous part in the next conflict. We must recollect that this branch of human activity is still in its infancy, that during the war itself air-borne bombs increased in weight from two pounds to two thousand pounds, and that this weight has since the war been carried to over four thousand pounds. Suppose, moreover, that these bombs, in land warfare at least, are charged not with high explosive, but with lethal gas, and that they take as their target not merely armies, but large cities in rear of the armies. Whether gas is prohibited or not, the tank has come to stay, and nobody knows as yet what its future will be. It is only by extrapolation, so to say, that we can form any estimate of the development of these two engines of war, the airplane and the tank, but this estimate is so terrible that all civilized peoples are justified in making every effort to reduce the chances of future war to as nearly zero as possible. And these efforts will be efficacious in the exact ratio of the sincerity with which they are made, not by one or by two, but by all nations interested in abating the evil of wars. For it must never be lost from sight that most wars, probably all wars to-day, spring out of selfishness, and that the regulation of the means of making war of itself will not make war impossible. These remarks find their pertinency in the fact that Germany and Russia were not represented in the Disarmament Conference. It is in no wise the part of this article to comment on their absence from the Conference. But it is allowable to point out that they in raw manpower are still stronger than all the rest of Europe, that Russia is a country of vast though undeveloped resources, and that Germany in spite of her defeat still retains her powers and faculties of organization. Suppose she were invited to assist Russia, so that the two might make common cause against all comers?

The arguments and possibilities of the foregoing remarks are mentioned here as being inherent in the subject. On the whole the cause of peace was advanced during the year. To expect everything to be at once completely done would be unreasonable. A significant beginning has been made; in evidence of the need of such a beginning, we may mention the fact that during the year, a state of war, involving 2,500,000 combatants existed in greater or less degree on ten fronts,

and that armed forces were retained on eighteen additional fronts to prevent outbreaks of hostilities.

STRENGTH OF THE PRINCIPAL ARMIES OF THE WORLD; ORGANIZATION

(a) **UNITED STATES:** 1. *Strength.* As the YEAR BOOK has already announced in this annual review, the military forces of the United States consist of the Regular Army, the National Guard, and the Organized Reserves. By way of economy, the first was reduced in strength during the year to 150,000 men. The actual strength of our military forces stood at the end of 1921 as follows:—

	Officers	Men
Regular Army.....	15,000	138,000
National Army.....	6,700	128,500
Organized Reserves.....	64,300	261

The table that follows gives the strength, etc., of the National Guard by States.

NATIONAL GUARD OF THE UNITED STATES, NOV. 30, 1921

	Present line officers	Strength enlisted men	Authorized enlisted strength	Present strength in per cent of authorized
1. Alabama.....	79	1,648	3,744	46
2. Arizona.....	29	562	729	81
3. Arkansas.....	82	1,599	2,041	82
4. California.....	122	2,682	5,776	49
5. Colorado.....	75	1,294	2,591	53
6. Connecticut.....	130	2,869	3,427	88
7. Delaware.....	48	726	1,103	70
8. Dist. of Columbia..	26	406	1,381	31
9. Florida.....	65	1,293	2,489	55
10. Georgia.....	105	2,116	3,546	60
11. Hawaii.....	46	1,305	2,817	44
12. Idaho.....	37	350	1,440	27
13. Illinois.....	272	5,709	11,971	50
14. Indiana.....	206	4,050	6,181	69
15. Iowa.....	164	3,347	4,419	79
16. Kansas.....	125	2,320	4,600	53
17. Kentucky.....	89	1,637	4,149	42
18. Louisiana.....	50	778	2,664	31
19. Maine.....	95	1,649	2,932	59
20. Maryland.....	161	2,502	3,899	68
21. Massachusetts.....	378	6,814	10,980	66
22. Michigan.....	147	3,007	5,338	59
23. Minnesota.....	253	4,205	6,304	71
24. Mississippi.....	56	1,092	2,082	55
25. Missouri.....	196	3,542	6,014	62
26. Montana.....	6	66	1,581	5
27. Nebraska.....	66	1,269	3,043	44
28. Nevada.....	15	196	179	16
29. New Hampshire.....	15	196	1,367	16
30. New Jersey.....	199	3,677	5,778	67
31. New Mexico.....	36	644	1,319	52
32. New York.....	882	18,035	25,767	73
33. North Carolina.....	101	2,031	4,070	52
34. North Dakota.....	17	329	1,667	21
35. Ohio.....	396	7,704	12,207	66
36. Oklahoma.....	151	3,035	5,041	63
37. Oregon.....	103	2,003	2,500	84
38. Pennsylvania.....	561	11,800	16,229	73
39. Porto Rico.....	46	1,616	1,581	105
40. Rhode Island.....	61	1,220	1,811	71
41. South Carolina.....	58	1,350	2,709	52
42. South Dakota.....	15	190	1,430	14
43. Tennessee.....	55	1,171	2,100	58
44. Texas.....	126	1,757	7,781	24
45. Utah.....	44	615	1,494	37
46. Vermont.....	60	1,043	1,621	68
47. Virginia.....	129	2,336	2,875	66
48. Washington.....	141	2,448	3,371	77
49. West Virginia.....	22	512	2,001	27
50. Wisconsin.....	331	6,342	9,079	73
51. Wyoming.....	29	388	895	45
	6,676	128,579	223,114	

Of our regular forces, a considerable portion was still kept in the region of the Rhine Valley, but suffered some reduction in numbers. This reduction was made chiefly to lessen the cost of this occupation borne, under the Treaty of Versailles, by Germany. At the end of the year, this cost has considerably exceeded \$250,000,000. To be exact, on Sept. 30, 1921, it amounted to \$248,244,000 and over, a formidable sum which must be refunded to the United States by Germany.

2. *Organization.* No fundamental or organic changes were made in our organization during the year. In April, the Secretary of War announced the creation of a skeletonised general headquarters whose purpose was to keep constantly prepared for active military activities. These headquarters were to be wholly distinct from the Office of the Chief of Staff, which was to continue, as before, to administer the military establishment.

In the Artillery, interest was still centred on the development of the 14-inch railway artillery, and of suitable mounts for 16-inch guns. The guns removed from certain coast-defenses during the war have not been reemplaced. It would seem that the intention of the War Department was to pass from a harbor-defense, pure and simple, that is, the prewar system, to one of mobile coast defense.

Cavalry. In accordance with the Act of June 4, 1920, the Cavalry had been reorganized as follows:

(a) War strength troop of 5 officers and 126 enlisted men, divided into troop headquarters, three rifle platoons, and one automatic rifle platoon.

(b) Seventeen regiments, each of two squadrons of three troops, a headquarters troop and a service troop.

(c) Six machine gun squadrons of three troops each, and three separate machine gun troops.

(d) Two cavalry divisions of two brigades each.

(e) Fourteen officers and fourteen enlisted men are assigned to the office of the Chief of Cavalry. The Cavalry at Fort Riley received thirty-five officers and four hundred and fifty men.

(f) Each headquarters is organized to be a complete unit in itself.

In consequence of the reduction of the Army to 150,000 men, three regiments of cavalry, the 15th, 16th, and 17th, were, in 1921, reduced to a state of what may be called inactivity. The regiments exist with their *cadres*, but have no men.

Infantry. As a result of thorough and exhaustive study of the war, the functions of the infantry became better defined. It is assured at present that this arm operating in the open will be backed by artillery of all calibres up to 6-inch, machine guns, tanks, gas, motor transport, and aviation. The exact manner in which these elements will be combined with infantry depends entirely on the circumstances of the moment and of the terrain, but we may take it for established, that infantry will be employed mainly in mopping-up, in consolidating new positions, and delivering the home-thrust at the moment when the resistance of the enemy has been destroyed or neutralized by some or all of the aids (machine guns, gas, etc.) just mentioned. This conclusion brings into high

relief the instruction and training now to be given our officers, whether regulars, guardsmen, or reserve.

3. *Military Policy.* Nothing was done during the year looking to the adoption of any settled military policy by the United States. It would have been too much to expect any such step. All other things equal, the mere announcement that a conference was to be held for the purpose of limiting armaments, would have checked any desire to make a pronouncement on this subject. The popular point of view would have been that as we were to limit armaments, that is, to have practically no army and navy, so any military policy other than one of mere negation would have been not only useless but absurd.

Unofficially however a kind of progress may be recorded. General Leonard Wood writing in the *American Legion Weekly* said that our peace-time regular army should never fall below a strength of 175,000. This force, increased by the National Guard would form our first line of defense, and should be so trained as at all times to maintain a high standard of efficiency. Next the Officers' Reserve Corps should be maintained at a minimum of 150,000, and kept in a state of high training. We could thus count in any emergency upon a total of approximately 200,000 officers, by whose efforts the proper training of forces raised in numbers would be reasonably assured.

Whatever may be done in the way of preparedness is conditioned in the United States upon the support and confidence of the public. It is therefore gratifying to record the fact that Citizens' Military Training Camps were held during the summer, one in each Corps Area. The attendance is set out in the accompanying table:

Corps area	Camp	Reported	Completed courses
1.....	Devens	1,300	1,166
2.....	Plattsburg	856	814
3.....	Meade	1,387	1,292
4.....	Jackson	1,083	1,033
5.....	Knox	1,312	1,207
6.....	Grant	1,204	1,143
7.....	Snelling	616	587
	Pike	596	555
8.....	Travis	779	687
	Logan	387	361
	Lewis	457	407
9.....	Presidio of San Francisco	704	662
		10,681	9,914

It is interesting to remark that whereas only 10,681 men actually reported for duty, over 40,000 applied for admission and over 93,000 made inquiries relative to attendance. The number of those actually present at the opening of the camps was reduced during the course, due to various causes, to 9973 of whom 9914 successfully completed the outlined courses of instruction.

In addition, the practice of detaching officers of the regular establishment for duty at schools officially recognized as part of the Reserve Officers' Training Corps system, was continued by the War Department with encouraging results.

The measures briefly indicated are slight in comparison with the tremendous effort we should be compelled to make if called upon to take up arms. The problem before us is to use our might

in every possible and honorable way to maintain and to perpetuate peace. We may be counted on to do this at almost any cost save dishonor. But we should ever recollect that, if it be true that it takes two to fight, so is it equally true that it takes two to keep the peace. And this should point to a system of preparedness in harmony with our destiny.

(b) FRANCE. A bill was introduced into the Chamber of Deputies providing for a peace-time force of 450,000 men with the colors. It will be at once remarked that this strength is markedly below the peace-time strength of 1914, at the outbreak of the war. Under this bill, Army Corps were to be replaced by divisions of which there were to be 34 Infantry and 8 Cavalry, each composed of 3 regiments. In addition there were to be 80 regiments of field artillery, 5 groups of horse artillery, 15 of heavy, and 18 of intermediate calibres. The normal personnel of this army was to consist of 9 marshals, 3 of whom are permanent; 100 generals, and approximately 1,000 other superior commanders, not all of whom, however, would be on service at one and the same time.

It was plain during the whole course of the year that the French still felt insecure in respect of future attack by Germany. Whatever might be said and done by conferences to limit armament, to insure future peace, and to remove so far as humanly possible, causes of future conflicts, the French were convinced that Germany would attack at the first opportunity. No other nation than France would more heartily welcome a trustworthy assurance that Germany would not attack or would be prevented from attack. But France felt that she had received no such assurance, and therefore was resolved to make every effort to protect herself. Hence the unjust reproach to France that she was "militaristic." It was unquestionable that during 1921, France had the best army in the world, and that she was determined to maintain its standards, but nothing could be further from the truth than the assertion that France was converted to "militarism."

(c) JAPAN. Of the Japanese Army no special remark is to be made here. So far as known, no noteworthy changes were made in either its strength or its organization.

(d) GERMANY. The limitations imposed on the size of the German Army by the Treaty of Versailles are well known: she was to have an army of but 100,000 men. Coupled with this reduction she was to surrender war material, and in fact, by the end of the year had surrendered over 37,000 guns (including 6,000 under construction, which were destroyed); over 3,000,000 rifles and carbines; over 75,000 machine guns, 33,000,000 loaded shell, 400,000,000 rounds of small arm ammunition, and 15,000 airplanes. When it is considered, moreover, that Germany has no fleet, has lost her colonies, and that owing to the depreciation of the mark, she has not the means to purchase raw materials abroad, it would seem as though she would be, in a military sense, powerless for many years to come. And by that time she would be perhaps ready to accept the situation. But the French were inclined to argue that Germany's case was not so bad as it looks. They recalled the progress by which Prussia's army, limited to 42,000 men after Jena, nevertheless

had grown to hundreds of thousands at the date of the Battle of Leipsic. And they seem to think that something of the same sort was going on in 1921. For example, the prewar regiment of infantry consisted of 70 officers, 245 noncommissioned officers and 2000 privates. In 1921 there were 81 officers, 400 noncommissioned officers and 2000 men, 16 companies instead of 13 that is, the new German infantry regiment was more richly provided with *cadres* (officers and noncommissioned officers) than it was before the war. Furthermore, in the Reichswehr, as the German army is called, privates' places in the ranks might be filled by additional noncoms. not to exceed 50 per cent of the regulation number. The regiment might thus have as many as 600 noncommissioned officers. In case of mobilization the *cadres* would be sufficient to form three regiments. It was thus plain that the Army of 100,000 men was really an army of *cadres*, that would form more than the backbone of any expansion called for by danger. Moreover, as compulsory military service had been abolished, and only volunteers were accepted for the colors, a rigorous selection had been applied, with the result that the army of potential officers though small, was of excellent quality. What has been said above of the infantry was equally true of the remainder of the army. Behind the Reichswehr stood the mass of old soldiers, and other elements, so that if war were to break out in the next very few years with France, the country would not be entirely helpless. And let it be borne in mind that some French authorities predicted another war between the two countries in five years. If it be argued that even with these masses of trained men, Germany would be helpless because of its lack of guns and airplanes, let it be recollected that the next war would probably be chemical, that airplanes can be furnished in a far shorter time than can guns, that even in time of peace the constituent elements of airplanes can be constructed in different places, and then concealed to be assembled at short notice when needed. And what is true of airplanes is equally true of other kinds of material.

It is significant to take note here of certain industrial developments in Germany in 1921. The day after Mr. Hughes launched his disarmament programme, the Berlin papers announced that certain explosive factories were going to increase their capital stock, the Nobel-Dynamit, for example, by 55,000,000 marks, another Köln-Rottweil, by 100,000,000. What the chemical industry meant during the war is so well known as to need no mention here, but what should be mentioned is that the seven principal chemical enterprises forming the group called *Interessen Gemeinschaft*, increased its capital to 1,073,500,000 marks in 1920. Whether it was further increased in 1921 is unknown, but the first ten months of 1921 were marked by the following developments: foundation of new firms, 156,000,000 marks; increase of capital, 1,077,500,000 marks. Now chemical industry in peace spells gas industry in war.

It is recognized that the surrender of war stores as set forth above is for the time being a guarantee of peace. But as an anonymous writer said in the *Revue des Deux Mondes*, of Jan. 1, 1922, "If Germany's soul fails to

change, if this soul is still thirsting for domination and the desire of gain, this guarantee is only temporary, for the industrial power of Germany, an important part of its war power, remains intact. Her chemical industry would allow her to begin anew, to-morrow, quantity-production of explosives and asphyxiating gases. As soon as the Government of the Reich could furnish the necessary appropriations her metallurgy would rapidly restore guns and rifles, motors for airplanes and trucks. Germany still has 60,000,000 inhabitants, several million old soldiers who served in the war, thousands of professional officers who never cease to regret their ancient trade and long to avenge the defeats they have suffered. . . . It is still the members of the Great Prussian General Staff, concealed by the shadow of a socialist minister, who are directing military affairs. It is not in vain that German propaganda . . . repeats ad nauseam that the German Army was not conquered. It is not in vain that general officers appear before crowds in ceremony after ceremony, to make violent speeches. It is not in vain that throughout Germany regimental societies of old soldiers are forming for the purpose of reviving recollections of the Great War and of the Imperial Army . . . that the official military authorities are supporting this movement by connecting, through names and insignia, the company-units of the Reichswehr with the regiments of the former régime." Without the connivance of the authorities, "how could it have been possible for General Hoefer in the Spring of 1921, to organize in Upper Silesia an army of 50,000 men completely equipped with heavy and light artillery, airplanes, motor trains, minenwefer, flame-projectors, and munitions of all kinds?"

It is these things and the things they connote that the French feared: they knew that hatred of France was increasing, and that the spirit of revenge was abroad in Germany. To repeat, they would welcome any assurance that their fears were groundless, but so far they felt that they were not. They intended to be ready, and they maintained that this was not militarism but self-defense.

STRENGTH OF THE ARMIES OF THE WORLD

According to a statement made public by the War Department, February 15, the strength of the regular armies of the world and their proportions to the respective populations are as follows:

Country	Population	Regular army	Regular army in per cent of population
United States.....	105,709,000	222,900 *	.21
Albania.....	850,000	13,500	1.58
Austria.....	8,400,000	22,000	.33
Belgium.....	7,555,600 *	100,000	1.32
Bulgaria.....	4,430,000	32,000	.72
Czecho-Slovakia.....	13,215,500	216,000	1.64
Denmark.....	2,941,000	27,500	.94
Estonia.....	1,200,000	36,500	3.04
Finland.....	3,325,000	35,000	1.05
France.....	39,601,500 *	735,300	1.85
Germany.....	55,086,000 *	150,000	.27
Great Britain.....	45,516,000 *	425,000 *	.93
Greece.....	7,500,000	240,000	3.20
Hungary.....	7,690,000	36,000	.46
Italy.....	36,740,000	484,000	1.28
Latvia.....	2,605,000	45,000	1.73

Country	Population	Regular army	Regular army in per cent of population
Lithuania.....	2,000,000	40,000	2.00
Netherlands.....	6,724,700 *	20,000	.30
Norway.....	2,391,800 *	30,000	1.25
Poland.....	30,072,000	815,000	2.71
Portugal.....	5,545,600	33,000	.60
Roumania.....	17,393,200	323,600	1.86
Russia (Bolshevist).....	182,182,000 *	1,500,000 *	.82
Serbs, Croats, & Slovenes.....	14,365,500	194,000	1.35
Spain.....	20,695,700 *	216,600	1.05
Sweden.....	5,813,800 *	15,600	.27
Switzerland.....	4,000,000	170,000	4.25
Turkey.....	12,000,000	100,000 †	.83

* 1911. * 1918. * 1910. * 1915. * 1917.
 † Includes 130,000 Indian troops serving outside of India.
 * Nationalist Army.
 * Estimated.

* Estimated strength at end of year, actual strength at end of year less than 150,000 and further reductions contemplated.

The following shows the strength of the American and Asiatic Armies:

Country	Population	Regular army	Regular army in per cent of population
Argentina.....	8,300,000	23,000	.27
Bolivia.....	3,000,000	7,100	.23
Brasil.....	22,000,000	37,000	.16
Chile.....	4,000,000	20,000	.50
China.....	400,000,000	1,369,900	.34
Colombia.....	5,475,000	6,000	.11
Ecuador.....	1,300,000	6,000	.46
Japan.....	58,000,000	273,200	.47
Mexico.....	16,000,000	90,000	.56
Paraguay.....	1,000,000	1,500	.15
Peru.....	3,530,000	7,500	.21
Uruguay.....	1,400,000	9,800	.70
Venezuela.....	2,848,000	9,000	.31

MISCELLANEOUS. (a) *Gas.* The abolition of gas in war was proposed by Mr. Hughes at the Disarmament Conference. It is doubtful, however, if there will be any agreement under this head. Even if abolished by conference, people are skeptical as to whether the agreement would be observed in war. We have already in this article spoken of Germany's absence from the Washington Conference, and of her great chemical industry. Hence even if a certain number of nations were to forego gas among themselves, this estoppel would automatically be void in the presence of an adversary not a part to the agreement. Moreover, there would seem to be no difference in principle at least between filling a man's lungs with deadly gas on the one hand, and, on the other, so shattering him by shrapnel as to make his possession of a pair of lungs a matter of no consequence. A better argument perhaps is, that other things equal, gas is relatively humane. The matter was still under discussion at the end of the year.

(b) *Nitrogen Supply.* The assurance of an adequate supply of nitrogen for war purposes was a matter of concern. Fortunately nitrogen is indispensable to the arts of peace as to those of war. It so happens that the United States have always been dependent on foreign sources for their supply of nitrogen. For example, during the war our nitrate fleet consisted of 103 steamers and 23 sailing vessels. Our chief domestic source of supply is by-product coke-ovens, but these do not give us more than a quarter of what we must have. Consequently, we import sulphate of ammonia from England, calcium cyanide

from Canada and sodium nitrate from Chile. Hence the interest felt in the offer of Mr. Ford, the automobile manufacturer, to take over the Muscle Shoals plant, begun during the war but never finished as a fixation-plant.

(c) *Cost of War.* According to a report made by Senator Spencer of Missouri, the money cost of the war to the Allies amounted to \$177,402,269,225, as of date Jan. 1, 1921.

By countries, this sum was divided as follows:-

United States.....	\$ 44,173,948,225
England.....	51,052,634,000
France.....	54,272,915,000
Italy.....	18,680,847,000
Belgium.....	8,174,731,000
China.....	585,376,000
Japan.....	481,818,000

\$177,402,269,225

Still more staggering was the estimate of the total loss of life due to all causes attributed to the war. This total was placed at 35,000,000, but little less than the total population of France.

MILITARY TERRITORY OF THE NIGER.

A territory under the governor-general of French West Africa (q. v.). Capital, Zinder.

MILITIA. See MILITARY PROGRESS.

MILK. See DAIRYING.

MILK PLANTS. See MUNICIPAL GOVERNMENT.

MILLER, DANIEL LONG. Bishop in the Church of the Brethren, died, June 8. He was born in Maryland, April 5, 1841; and after a common school education, taught school in that State, and was engaged in the grain and grocery business for several years. He went into the publishing business in 1882, studied for a time in Germany, and became the editor of the *Gospel Messenger* in 1885. In 1887 he was ordained to the ministry of the Church of the Brethren, and was made bishop in 1890. He traveled widely and was prominent in geographical societies. He wrote: *Wanderings in Bible Lands* (1892); *Girdling the Globe* (1897); *Eternal Verities* (1920); *The Other Half of the Globe* (1906); *Some Who Lead* (1912), etc.

MINERALOGICAL CHEMISTRY. See CHEMISTRY.

MINERAL RESOURCES. The following information was supplied by the United States Geological Survey in 1921: The year 1920 showed on the whole an improvement over 1919 in the quantity and value of mineral products sold and made a new record in the total value of mineral products (\$6,707,000,000), but the conditions of operation remained unfavorable and the marked increase in value was not so much a result of renewed prosperity as of increased costs of operation. The two years presented a contrast in that 1919 began in a period of depression that closely followed the signing of the armistice and continued until autumn, whereas 1920 began in a period of improved demand, except for metals, which also lasted until autumn, when a period of general stagnation began that continued through the year 1921. The temporary increase in activities which characterized the greater part of 1920 was evidently due in part to the tendency of some to continue the war-time habit of purchasing regardless of price and also to over-optimism on the part of producers, especially those of base metals; but markets had become overstocked with many

MINERAL PRODUCTS OF THE UNITED STATES IN 1919 AND 1920

1919

Product METALLIC	Quantity	Value \$	Quantity	Value	Quantity	Value	1920		Percentage of in- crease or decrease (approximate)
							Increase or decrease (approximate)	Quantity	
Aluminum.....	13,874	38,558,000	.....	41,375,000	.....	1,817,000	+	4	+ 7
Antimonial lead.....	2,501	1,513,068	.....	1,463,265	.....	49,803	+	3	+ 30
Antimony.....	376,666	410,504	.....	473,450	.....	62,946	+	15	+ 15
Asurite.....	94,839	2,201,747	.....	3,247,345	.....	1,045,598	+	38	+ 37
Cadmium.....	15,079	121,926	.....	161,261	.....	39,335	+	29	+ 24
Chromite.....	1,288,419,329	239,274,000	.....	222,487,000	.....	16,787,000	-	51	- 65
Copper, sales value.....	399,900	46,995,000	.....	49,509,400	.....	2,514,400	+	5	+ 7
Pyrrhotite.....	2,918,638	60,353,400	.....	523,611	.....	10,824,000	-	18	- 18
Gold.....	58,319,000	.....	.....	.....	.....	.....	.....	.....	.....
Iron.....	30,123,000	.....	.....	.....	.....	.....	.....	.....	.....
Lead (refined), sales value.....	484,433	773,046,236	.....	1,137,926,882	.....	364,880,646	+	13	+ 43
Manganese ore (50 per cent or more Mn).....	55,322	44,000,000	.....	76,208,000	.....	32,208,000	+	19	+ 47
Manganiferous ore (3 to 50 per cent Mn).....	483,733	1,798,863	.....	2,383,000	.....	584,137	+	70	+ 33
Nickel, value at New York City.....	511	1,452,492	.....	2,091,000	.....	638,508	+	55	+ 35
Platinum and allied metals (value at New York City).....	48,109	434,485	.....	275,120	.....	159,365	-	32	- 37
Quicksilver (value at San Francisco), flasks (75 pounds net).....	21,415	5,614,335	.....	4,697,722	.....	916,613	-	8	- 16
Silver.....	56,682,445	1,933,560	.....	1,041,156	.....	892,404	-	39	- 46
Tin (metallic equivalent).....	60	63,523,852	.....	57,420,325	.....	6,103,527	-	67	- 74
Tungsten ore (rutile).....	102	78,600	.....	20,100	.....	58,500	+	172	+ 78
Tungsten ore (60 per cent concentrates).....	330	20,400	.....	77,780	.....	57,380	+	35	+ 15
Uranium and vanadium minerals.....	452,272	357,000	.....	2,343,500	.....	1,986,500	+	5	+ 10
Zinc, sales value.....	.....	1,100,000	.....	72,907,000	.....	71,807,000	-	.....	.....
Total value of metallic products (approximate).....	.....	66,032,000	.....	\$1,724,300,000	.....	.....	.....	.....	.....

MINERAL PRODUCTS OF THE UNITED STATES IN 1919 AND 1920—Continued

1919

Product NON-METALLIC	Quantity	Value	Quantity	Value	1920			Percentage of in- crease or decrease (approximate)
					Quantity	Value	Increase or decrease (approximate)	
Arsenious oxide.....	short tons.....	6,029	\$ 1,181,694	11,502	+	\$ 2,021,356	+ 5,473	+ 91
Asbestos.....	do.....	1,353	243,700	1,710	+	1,154,000	+ 357	+ 28
Asphalt.....	do.....	702,973	9,410,381	896,500	+	13,219,000	+ 183,527	+ 26
Barytes (crude).....	do.....	189,647	1,555,793	207,700	+	1,946,800	+ 18,053	+ 10
Borates.....	do.....	66,146	1,380,000	120,320	+	793,000	+ 54,174	+ 25
Bromine.....	do.....	1,854,971	1,234,969	1,160,584	+	745,381	+ 694,387	+ 37
Calcium.....	pounds.....	26,123	321,526	58,604	+	2,045,851	+ 32,481	+ 40
Calcium-magnesium chloride.....	short tons.....	86,141,488	147,318,368	96,944,000	+	194,513,000	+ 10,802,512	+ 32
Cement.....	barrels (376 pounds net).....	2,363,000	290,790,000	3,159,000	+	394,220,000	+ 796,000	+ 34
Clay Products.....	short tons.....	458,063,000	1,170,000,000	556,553,000	+	1,950,000,000	+ 780,000,000	+ 67
Coal.....	do.....	78,653,751	364,928,950	79,500,000	+	846,249	+ 846,249	+ 16
Pennsylvania anthracite.....	long tons.....	44,793,542	(¹)	51,988,000	+	7,094,458	(¹)	(¹)
Coke.....	short tons.....	66,934	444,461	83,000	+	832,000	+ 16,066	+ 24
Diatomaceous (infusorial) earth and tripoli.....	do.....	2,801	23,203	2,327	+	21,685	+ 274	+ 11
Emery.....	do.....	71,054	585,200	131,000	+	1,099,000	+ 59,946	+ 84
Feldspar.....	do.....	138,290	3,635,574	196,000	+	4,544,000	+ 47,710	+ 29
Fluorapatite.....	do.....	106,145	1,998,829	128,497	+	2,506,189	+ 22,342	+ 21
Fuller's earth.....	do.....	4,944	310,131	5,476	+	434,425	+ 532	+ 11
Garnet for abrasive purposes.....	do.....	.....	111,763	.....	+	107,500	.....	.....
Gems and precious stones.....	do.....	.....	47,716	4,694	+	49,758	+ 1,315	+ 39
Graphite.....	do.....	3,379	731,141	9,632,260	+	1,546,169	+ 1,546,169	+ 19
Amorphous.....	short tons.....	8,086,191	1,326,016	53,484	+	1,707,004	+ 6,619	+ 14
Crystalline.....	pounds.....	46,865	15,727,907	3,129,143	+	24,533,065	+ 708,979	+ 29
Grindstones.....	do.....	2,420,163	27,643,000	3,250,000	+	33,321,000	+ 278,577	+ 9
Gypsum.....	do.....	3,071,423	1,248,415	303,767	+	2,748,150	+ 147,541	+ 94
Lime.....	do.....	156,296	58,084	(²)	+	(²)	(²)	(²)
Magnesite (crude).....	do.....	3,258	483,567	.....	+	.....	.....	.....
Mica.....	do.....	1,545,709	66,972	.....	+	61,676	.....	.....
Sorap.....	do.....	.....	.....	.....	+	.....	.....	.....
Sheet.....	pounds.....	.....	.....	.....	+	.....	.....	.....
Millstones.....	do.....	.....	.....	.....	+	.....	.....	.....
Mineral paints.....	do.....	.....	.....	.....	+	.....	.....	.....
Natural pigments.....	do.....	.....	.....	.....	+	.....	.....	.....
Zinc and lead pigments.....	do.....	.....	.....	.....	+	.....	.....	.....
Mineral waters.....	gallons sold.....	155,648	26,810,671	40,000,000	+	5,000,000	+ 1,302,720	+ 3
Natural gas.....	M cubic feet.....	38,697,280	4,880,186	(³)	+	(³)	(³)	(³)
Natural-gas gasoline.....	gallons.....	735,000,000	162,000,000	(³)	+	(³)	(³)	(³)
Oilstones, etc.....	do.....	340,647,000	63,608,900	1,144	+	231,747	+ 319	+ 23
Peat.....	short tons.....	1,463	235,943	73,304	+	921,732	+ 4,007	+ 6
.....	do.....	69,197	705,532	.....	+	.....	.....	.....

¹ In this general statement certain of the figures represent shipments rather than quantity mined, and many of the figures for both 1919 and 1920 are preliminary and some are estimates.

² Excluded from metallic totals, as the value of the antimony contained in antimonial lead is included in the antimonial lead value and the remainder under last item ("Unspecified").

³ Figures for 1920 not yet available. Estimate of value included in total value of metallic products.

⁴ Not included in total value.

⁵ Survey not at liberty to publish figures. Value included in total value of metallic products.

⁶ Figures for 1920 not yet available. Estimate of value included in total value of non-metallic products.

⁷ Figures not yet available.

⁸ Carriage discontinued after 1915. Value of iron ore sold for paint included under last item ("Unspecified").

MINERAL PRODUCTS OF THE UNITED STATES IN 1919 AND 1920—Continued

Product	Quantity	Value	1920		Percentage of increase or decrease (approximate)
			Quantity	Value	
NON-METALLIC—Continued					
Petroleum.....	377,719,000 barrels (42 gallons)...	\$ 775,000,000	443,402,000	\$1,360,000,000	+17
Phosphate rock.....	2,271,983 long tons...	11,591,268	4,103,982	25,079,572	+81
Potash (K ₂ O).....	46,728 short tons...	11,271,269	41,444	7,463,026	+9
Pumice.....	36,051 do.....	116,835	41,841	114,433	+2
Pyrites.....	420,647 long tons...	2,558,172	275,000	1,450,000	+35
Salt.....	6,882,902 short tons...	27,074,694	6,965,188	30,539,168	+1
Sand:					
Glass.....	1,927,409 do.....	3,583,371	2,144,000	4,722,000	+31
Molding, building, etc., and gravel.....	68,748,998 do.....	42,358,185	75,743,000	57,972,000	+37
Sand-lime brick.....	146,947 thousands...	1,705,163	162,289	2,364,470	+10
Silica (quartz).....	63,332 short tons...	373,571	22,000	233,000	+65
Slate.....	6,080,648 short tons...	6,080,648	68,500,000	8,726,442	+45
Stone.....	62,925,000 short tons...	93,500,000	68,500,000	120,500,000	+9
Sulphur.....	678,257 long tons...	10,232,000	1,517,625	30,000,000	+124
Talc and soapstone.....	184,943 short tons...	2,352,675	222,724	3,052,038	+20
Thorium minerals (monazite).....	(¹) pounds.....	(¹)	(¹)	(¹)	(¹)
Total value of non-metallic products (approximate).....		\$3,257,900,000		\$4,977,500,000	+53
SUMMARY					
Total value of metallic products.....		\$1,351,600,000		\$1,724,300,000	+28
Total value of non-metallic products (exclusive of mineral fuels).....		722,200,000 }		4,977,500,000	+53
Total value of mineral fuels.....		2,536,700,000 }			
Total value of "unspecified" (metallic and non-metallic) products (partly estimated).....		3,500,000		\$5,200,000	+49
Grand total approximate value of all mineral products.....		\$4,613,000,000		\$6,707,000,000	+45

¹ Survey not at liberty to publish figures. Value included under last item ("Unspecified").² Figures not yet available.³ Includes in 1920 the value of the following products: Antimony other than content of antimonial lead, bismuth, cadmium sulphide, chalc, chert, cobalt oxide and cobalt hydrate, columbite, flint lining for tube mills, ilmenite, iron ore sold for paint, lithium minerals, magnesite, marls, molybdenum, pebbles for grinding, selenium, silica sand and sandstone (finely ground), sodium salts (sodium carbonate, sodium sulphate, trona, and borax) from natural sources, tellurium, and an estimate of the value of miscellaneous mineral products, statistics which are not collected annually by the Survey.

commodities, and ultimate consumers gradually adopted the policy of postponing the purchase of goods they did not urgently need. As a result, the stagnation that was manifest in a few industries in the summer of 1920 had become general by November. Attempts of labor organizations to have the high wages of war time continued resulted in several strikes and helped to increase costs of operation, with resulting temporary increase in prices. This was especially true in the coal trades, which in turn affected many other industries. The poor conditions of transportation that were characteristic of 1919 continued well into 1920 and increased the uncertainties and consequently the costs of operation. These disturbances, however, gradually spent themselves, prices began falling, and efforts to repeal excessive war-time taxes and lower transportation rates helped to bring industrial conditions back to normal. The preceding table (pages 458-460) gives figures for value and quantity of mineral products in 1919 and 1920.

MINIMUM WAGE. No new States adopted minimum wage laws in 1921, and Texas repealed its existing law, which was created in 1919, leaving minimum wage laws extant in twelve States, the District of Columbia, and Porto Rico, and apply-

forty-first annual convention of the American Federation of Labor called upon Congress to pass the Johnson-Nolan bill at the earliest moment, but up to December, 1921, nothing had been reported.

AUSTRALIA. Minimum wages applying to adult male workers in the state of New South Wales as fixed by the New South Wales Board of Trade, October, 1920, were: £4 5s. (\$20.68, par) a week, 14s. 2d. (\$3.45, par) a day, and 1s. 9 1/4d. (43 cents, par) an hour. This decision does not apply to rural workers nor to woman labor. Recent wage awards for industries in South Australia include: Cardboard box and paper bag making industry; stove, oven, range, and safe making industry; fibrous plaster industry; horseshoeing; biscuit and confectionery industries; painting and decorating; brush manufacturing. The minimum wage for adult females in the metropolitan area was 35s. (\$8.52, par) that for adult males 13s. 3d. (\$3.22, par) per day.

ENGLAND AND WALES. Minimum rates of wages for agricultural labor in England and Wales have recently been revised so far as affects male workers under 21 years of age and women and girls. The following table is taken from the *Labor Gazette* (London) for February, 1921:

MINIMUM RATES OF WAGES FOR MALE AGRICULTURAL WORKERS UNDER 21 YEARS OF AGE IN CERTAIN COUNTIES IN ENGLAND

[1 shilling at par = 24.3 cents; 1 penny = 2.03 cents]

Age	Minimum weekly rates in—				
	Northum- berland, Durham, Glamorgan, and Mon- mouth	Middlesex, Lincoln, and York- shire	Kent, Lan- cashire, Surrey, Cumber- land, and Westmore- land	Other counties	
	s. d.	s. d.	s. d.	s. d.	
20 and under 21 years	46 6	45 6	44 6	43 0	
19 and under 20 years	43 6	42 6	42 0	40 6	
18 and under 19 years	41 0	40 0	39 0	38 6	
17 and under 18 years . . . . .		.....	.....	30 6	

¹ Except Cheshire, where rates of 40s., 46s. 6d., 44s. 6d., and 35s. 6d. are fixed for the four age groups payable in respect of a week of 54 hours all the year round.

ing only to females and minors. New awards, or revisions, were made during the year by the District of Columbia, Massachusetts, Washington, and Wisconsin. Changes in the existing laws were made by two States: Arkansas passed an amendment changing the permanent administrative body of three persons to one of four; Minnesota abolished its minimum wage commission, transferring the powers, duties, and employees thereof, to the division of women and children of the department of labor and industries. Massachusetts which had heretofore never published the names of employers violating its decrees, as provided in its minimum wage statute, was obliged to do so by certain persistent violators, notably in the paper box industry. Efforts were made in Ohio to secure the enactment of a law establishing a minimum wage; the legislature was authorized by constitutional amendment of 1912 to pass such a law, but at the close of the year this power had not been exercised. In the field of Federal minimum wage legislation there was the Johnson-Nolan bill providing a wage of not less than \$3.00 a day for all Federal employees. By June this bill had been reported favorably to the lower House. The

For women and girls the minimum rates payable in all districts except Yorkshire and Somerset have been increased, the new rates ranging from 3d. an hour for workers under 14 years of age to 8d. an hour for those 18 years and over. A work-day of 8 and 8 1/2 hours is required, while for overtime women 18 years of age and over are paid 10d. an hour on week days and 1s. an hour on Sundays, except in Yorkshire, where the rates for overtime are 1s. 1/2d. and 1s. 3d. an hour, respectively.

SWITZERLAND. After an investigation in 1920 by the arbitration office of the printing trade an increased minimum wage for printers was established amounting to 76 francs (\$14.67, par) for class A, 82 francs (\$15.83, par) for Class B, 91 francs (\$17.56, par) for Class C, and 103 francs (\$19.88, par) for class D.

MINNESOTA. POPULATION. According to the report of the census of 1920, there were 2,387,125 residents in the State, Jan. 1, 1920, as compared with 2,075,708 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	3,427,000	140,507,000	\$43,557,000
	1920	3,238,000	123,300,000	62,883,000
Oats.....	1921	3,924,000	94,178,000	21,680,000
	1920	3,702,000	138,825,000	49,877,000
Barley.....	1921	886,000	17,720,000	6,025,000
	1920	895,000	22,375,000	13,872,000
Wheat.....	1921	2,582,000	24,943,000	24,194,000
	1920	2,890,000	28,168,000	36,618,000
Flaxseed.....	1921	287,000	2,728,000	4,118,000
	1920	320,000	3,040,000	5,563,000
Rye.....	1921	582,000	10,185,000	6,315,000
	1920	618,000	8,806,000	10,743,000
Hay.....	1921	3,859,000	15,869,000	41,038,000
	1920	3,766,000	15,892,000	68,380,000
Potatoes.....	1921	367,000	27,525,000	24,772,000
	1920	319,000	31,581,000	25,265,000

¹ Tons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Minnesota was issued by the Bureau of the Census. A comparative summary for the State for 1914 and 1919 follows:

	Census—		Per cent of increase ¹ 1914-19
	1919	1914	
Number of establishments.....	6,225	5,974	4.2
Persons engaged in manufactures.....	147,665	115,690	27.6
Proprietors and firm members.....	5,128	5,233	-2.0
Salaried employees.....	26,914	17,623	52.7
Wage earners (average number).....	115,623	92,834	24.5
Primary horsepower.....	473,090	358,737	31.9
Capital.....	690,058,000	\$354,434,000	94.7
Services.....	172,666,000	80,591,000	114.2
Salaries.....	45,360,000	22,084,000	105.4
Wages.....	127,306,000	58,507,000	117.6
Materials.....	853,090,000	336,849,000	162.2
Value of products.....	\$1,218,130,000	493,354,000	146.9
Value added by manufacture (value of products less cost of materials).....	335,040,000	156,505,000	114.1

¹ A minus sign (—) denotes decrease.

FINANCE. Figures for the year 1921 were not available, but the following information concerning the finances of the State were supplied by the State officials: Minnesota had the largest permanent trust fund of any State in the union in 1921. At the end of the fiscal year June 30, 1920, the total of cash and securities in possession of the State treasurer and belonging to the several State trust funds, amounted to \$31,767,890.19. Various State receipts for that fiscal year included: Royalties on iron ore from State lands, \$994,535.59; interest from invested permanent trust funds, \$1,390,954.28; sales of farm machinery and binding twine manufactured at the State prison, \$4,491,121.63; sales of State timber, \$327,434.13; inheritance taxes, \$1,056,687.24; telephone taxes, \$358,744.47; railroad gross earnings taxes, \$7,801,678.94; incorporation fees, \$159,040, and automobile license fees, \$204,172. The assessed value of all real and personal property in Minnesota subject to ad valorem taxation for 1920, as equalized by the Minnesota Tax Commission, was \$2,553,671,453.

Comparisons of valuation totals follow:

	1910	1915	1920
Real estate.....	\$1,012,449,518	\$1,289,214,531	\$1,751,315,456
Personal property.....	{ 209,986,859 }	233,368,380	364,727,126
Moneys and credits.....		212,134,901	437,626,871
Totals.....	\$1,222,435,377	\$1,734,717,812	\$2,553,671,453

Personal property is assessed annually and real estate only in the even numbered years, except

that new buildings are added. These figures do not include the value of railroad property in the State, nor the property of freight line, sleeping car, express, telephone and trust companies not doing a banking business, all of which are subject to a gross earnings tax. The value of this property had not been officially ascertained.

LEGISLATION. Among the measures passed at the legislative session, the following may be mentioned: Regulation of traffic in aircraft over cities of the first class; proposed amendment to the constitution for the purpose of authorizing the extension of the State's credit for the development of agricultural resources within the State; regulations pertaining to the occupation of barbers creating a board of examiners to license practitioners; regulation of the manufacture of "soft" drinks; regulation of certain occupations of children in streets and public places; provision in respect to the construction, maintenance and inspection of dry cleaning and dry dyeing establishments; empowering the Commissioner of Agri-

culture to assist the different coöperative bodies engaged in buying and selling farm products and providing for the auditing of the books of such corporations under the Commissioner's direction; relating to the storage of milk or cream pending transportation; authorizing cities of over 50,000 to establish and operate public landings, wharves, and docks, etc.; prohibiting the manufacture, preparation, and sale of adulterated or misbranded drugs and authorizing cities of between 10,000 and 20,000 inhabitants to construct and operate municipal electric light and power plants and dispose of electricity to private consumers; creating an Industrial Commission and continuing the Department of Labor and Industries under the control of that commission, the office of Labor Commissioner being abolished; relating to fire insurance policies on motor vehicles; relating to mutual insurance companies; provision for the maintenance of school libraries; relating to live-stock exchanges and their rules and regulations; provision against lynching, fixing indemnity for the dependents of any person lynched and providing for the removal of sheriff and deputy sheriff in charge of the person

lynched; declaring chambers of commerce or exchanges whose members deal in grain, live stock

or other farm products to be public markets and regulating the membership and the rights of members; providing protection for maternity and infancy; amending and codifying the laws relating to the militia, the Minnesota National Guard, and the National Guard armories and bringing organization and discipline into conformity with the regulations of the Federal laws; provision for a tax on persons and companies engaged in mining in the State; creation of a local improvement fund in cities between 20,000 and 50,000, with authority to issue bonds for certain purposes; creation of a State public park to be known as Scenic State Park; provision for the enforcement of the laws in respect to intoxicating liquors; requiring villages and cities of the fourth class to maintain public rest rooms; provision for the prevention of injury to the eyes of workmen in certain occupations by requiring the use of certain protective devices; provision for the relief and support of children of school age required by law to attend school; definition of gambling contracts as applying to sales of wheat, grain, and other farm products; the prohibition of Boards of Trade, etc., from making rules designed to enforce the execution of such gambling contracts; describing the liability of the employer for compensation of workmen for injuries arising from accident or occupational condition; provision for the regulation of workmen's compensation insurance rates and creation of a Workmen's Compensation Insurance Board for the supervision and regulation of such rates.

Of the above the measures respecting labor were especially important. Their principal features were as follows: An industrial commission of three members was established to supervise the administration of all labor laws, including the workmen's compensation act. The members were to be appointed by the governor and senate for six-year terms. According to the workmen's compensation law a period not to exceed twenty-five weeks was fixed for recovery of health and reeducation respectively. During this period the workman was to receive two-thirds of his salary as well as medical care. This was substituted for the specific schedule in the case of permanent disability. The

State, Mike Holm; Auditor, Ray P. Chase; Treasurer, Henry Rines; Attorney-General, Clifford L. Hilton; Commissioner of Education, J. M. McConnell; Superintendent of Banks, F. E. Pearson; Commissioner of Insurance, Gustav Lindquist; Commissioner of Agriculture, N. J. Holmberg.

JUDICIARY. Supreme Court: Chief Justice, Calvin L. Brown; Associate Justices, Homer B. Dibell, Andrew Holt, Oscar Hallam, James H. Quinn.

MINNESOTA, UNIVERSITY OF. A State institution of the higher learning at Minneapolis, Minn.; founded in 1868. The enrollment for the fall of 1921 was 8026, and for the summer session 3238. The faculty numbered 1117. The income was \$5,915,433. The library contained 300,000 volumes. In the course of the year a music building was completed. President, Lotus Delta Koffman.

MISSISSIPPI. POPULATION. According to the report of the census of 1920, there were 1,790,618 residents in the State, Jan. 1, 1920, as compared with 1,797,114 in 1910.

AGRICULTURE. The followtable is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Corn.....	1921	3,172,000	57,096,000	\$31,974,000
	1920	2,770,000	44,320,000	45,206,000
Oats.....	1921	147,000	2,940,000	1,882,000
	1920	128,000	2,176,000	1,893,000
Hay.....	1921	468,000	1,532,000	7,582,000
	1920	441,000	1,629,000	10,898,000
Potatoes.....	1921	16,000	1,088,000	2,176,000
	1920	16,000	1,392,000	2,784,000
Swt. potatoes.....	1921	107,000	8,560,000	6,334,000
	1920	103,000	11,330,000	11,896,000
Sor. syrup.....	1921	53,000	14,664,000	1,819,000
	1920	50,000	14,500,000	4,050,000
Cotton.....	1921	2,668,000	1,870,000	72,210,000
	1920	2,950,000	1,895,000	68,491,000

¹ Tons.

² Gallons.

³ Bales.

DRAINAGE. The following summary of the drainage conditions of the State in 1920 was issued by the United States Bureau of the Census:

	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	272,101	100.0
Farms reporting land having drainage.....	34,926	12.8
Farms reporting land needing drainage.....	29,872	11.0
All land in farms.....	18,196,979	100.0
Improved land in farms.....	9,325,677	51.2
Farm land reported as provided with drainage.....	825,878	4.5
Farm land reported as needing drainage.....	1,455,534	8.0
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	29,671,680	100.0
All land in operating drainage enterprises.....	1,801,444	5.4
Improved land.....	941,239	3.2
Timber and cut-over land.....	631,964	2.1
Other unimproved land.....	28,241	0.1
Capital invested in and required for completion of operating enterprises.....	\$8,561,264	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	7,076,164	82.7
Additional capital required to complete these enterprises.....	1,485,100	17.3

time limit was abandoned for total permanent injury, but the sum to be paid must not exceed \$10,000. The law included occupational diseases within its scope and provided for dependents in case of fatal accidents. It applied also to farmers.

OFFICERS. Governor, J. A. O. Preuss; Lieutenant-Governor, Louis L. Collins; Secretary of

The total works completed by the drainage enterprises to Dec. 31, 1919, comprised 1815.1 miles of open ditches, 238.8 miles of tile drains, and 6.7 miles of accessory levees; the additional lengths under construction were 223.6 miles of ditches, 54.2 miles of tile drains, and 36.8 miles of levees. These figures do not include drains or

levees installed by individual farm owners supplemental to the works of the enterprises, nor the works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. There is one pumping district for land drainage among the enterprises under construction in Mississippi. Part of the drainage water from 44,000 acres is to be removed by two centrifugal pumps of 78,000 gallons per minute capacity, operated by internal-combustion engines capable of developing 250 horsepower. The principal crops grown on the land drained in drainage enterprises were corn and cotton.

MANUFACTURES. The United States Bureau of the Census issued the following comparative figures of the census of the State's manufactures in 1919 and 1914:

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	2,455	2,209	11.1
Persons engaged.....	64,452	52,277	23.3
Proprietors and firm members.....	2,811	2,386	17.8
Salaried employees.....	4,081	3,189	28.0
Wage earners (average number).....	57,560	46,702	23.2
Primary horsepower.....	200,814	186,434	7.7
Capital.....	\$164,117,337	\$81,005,484	90.3
Salaries and wages.....	59,182,535	23,007,760	157.2
Salaries.....	7,926,819	3,831,132	106.9
Wages.....	51,255,716	19,176,627	167.3
Paid for contract work.....	2,684,155	2,075,832	29.3
Rent and taxes.....	4,598,382	1,320,197	248.3
Cost of materials.....	96,677,871	41,340,122	133.9
Value of products.....	197,748,987	79,550,095	148.6
Value added by manufacture.....	101,069,116	38,209,973	164.5

There were in the State in 1920 nine cities having more than 10,000 inhabitants—Biloxi, Columbus, Greenville, Hattiesburg, Jackson, Laurel, Meridian, Natchez, and Vicksburg. These nine cities, whose combined population in that year was 136,201, formed 7.6 per cent of the total population for Mississippi and reported 24.9 per cent of the value of the State's manufactured products in 1919. The large increases in wages, cost of materials, and the value of products, as presented in the table, are largely due to the change in industrial conditions brought about by the World War, and, therefore, cannot properly be used to measure the growth of manufactures during the census period 1914-19. However, the increases in the average number of wage earners and horsepower are significant evidences of the growth of the manufacturing activities of the State. The addition of the Federal income tax since 1914 will account for the exceptional increase in "rent and taxes." The proportion of female wage earners in the State is small, but 5.2 per cent in 1919. Biloxi is the only city in the State showing a larger proportion of female wage earners (59.6 per cent) in 1919 than of males; this is due to the extensive employment of females in the canning industry in that city. A considerable shortening of hours of all wage earners since 1914 was indicated. In that year 7.2 per cent were forty-eight or under as against 18.5 per cent in 1919, while the percentage of sixty or over in 1914 was 75.2 as compared with 67.7 in 1919.

OFFICERS. Governor, Lee M. Russell; Lieutenant-Governor, Homer C. Castell; Secretary of State, Jos. W. Power; State Treasurer, Dr. Wm.

Murrah; State Auditor, J. W. Miller; Attorney-General, Stokes V. Roberson.

MISSISSIPPI, UNIVERSITY OF. A co-educational State institution of the higher learning at University, Miss.; founded in 1848. The enrollment for the fall 1921 was 650. The faculty numbered 36. The State appropriations average about \$150,000 a year. The library contained 32,000 volumes. In the course of the year a new chemistry building was in process of construction at a cost of about \$350,000 and three new dormitories were approaching completion in December. President, Joseph M. Powers.

MISSOURI. POPULATION. According to the report of the census of 1920, there were 3,404,055 residents in the State, Jan. 1, 1920, as compared with 3,293,335 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	6,096,000	182,880,000	\$73,152,000
	1920	6,646,000	212,672,000	136,110,000
Oats.....	1921	2,148,000	42,960,000	12,888,000
	1920	1,918,000	58,499,000	28,665,000
Wheat.....	1921	3,161,000	34,462,000	34,117,000
	1920	3,012,000	37,653,000	60,245,000
Tobacco.....	1921	4,000	3,700,000	740,000
	1920	5,000	5,000,000	1,650,000
Hay.....	1921	3,329,000	3,758,000	36,289,000
	1920	3,332,000	4,115,000	64,025,000
Potatoes.....	1921	82,000	4,756,000	6,421,000
	1920	80,000	6,580,000	9,906,000
Swt. potatoes...	1921	14,000	1,400,000	1,400,000
	1920	13,000	1,430,000	2,218,000
Sor. syrup.....	1921	28,000	2,408,000	2,119,000
	1920	52,000	4,316,000	5,395,000
Cotton.....	1921	117,000	78,000	5,850,000
	1920	136,000	79,000	5,323,000

¹ Pounds ² Tons. ³ Gallons. ⁴ Bales.

DRAINAGE. The summary of drainage conditions in the State in 1920 shown on page 465 was issued by the United States Bureau of the Census.

The total works completed by the drainage enterprises to Dec. 31, 1919, comprised 3438.7 miles of open ditches, 38.8 miles of tile drains, and 456.9 miles of accessory levees; the additional lengths under construction were 460.4 miles of open ditches, 5.9 miles of tile drains, and 74.9 miles of levees. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the enterprises, nor the

	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	263,004	100.0
Farms reporting land having drainage.....	11,917	4.5
Farms reporting land needing drainage.....	19,572	7.4
All land in farms.....	acres.. 34,774,679	100.0
Improved land in farms.....	acres.. 24,832,966	71.4
Farm land reported as provided with drainage.....	acres.. 859,663	2.5
Farm land reported as needing drainage.....	acres.. 830,693	2.4
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres.. 43,985,280	100.0
All land in operating drainage enterprises.....	acres.. 2,596,204	5.9
Improved land.....	acres.. 1,474,302	3.4
Timber and cut-over land.....	acres.. 1,074,860	2.4
Other unimproved land.....	acres.. 47,042	0.1
Capital invested in and required for completion of operating enterprises.....	\$24,749,735	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	20,723,128	83.7
Additional capital required to complete these enterprises.....	4,026,607	16.3

works of flood-protection or levee districts that had not undertaken the construction of ditches or tile drains. There were 11 pumping districts among the operating drainage enterprises in Missouri, and 4 among the non-operating enterprises. The principal crops grown on the land drained in drainage enterprises were cotton, corn, and wheat.

MANUFACTURES. The general results of the 1920 census of manufactures, covering the year 1919, for the State of Missouri were published by the United States Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. A comparative summary for the State, 1919 and 1914, follows:

second and third classes at the option of the mayor and the common councils; prohibiting the employment of children in certain occupations, providing for issuing labor permits in certain cases and prescribing powers and duties of the Board of Education and State Industrial Inspectors; provision for the regulation, etc., of boarding homes for children; provision for the incorporation of a Commodity Association operated by persons engaged in growing and producing agricultural products; authorizing stock corporations to transact the business of banking or insurance and providing regulations for the same; creating a municipal corporation court in all counties having a population of between 90,000 and 150,000; insuring the freedom of dairy products from germs of tuberculosis and other diseases; provision for competent instruction in the public schools in

	Census—		Per cent of increase ¹
	1919	1914	1914-19
Number of establishments.....	8,593	8,386	2.5
Persons engaged in manufactures.....	245,826	188,266	30.6
Proprietors and firm members.....	7,676	7,698	—0.3
Salaried employees.....	42,250	28,386	48.8
Wage earners (average number).....	195,891	152,182	28.7
Primary horsepower.....	478,483	391,385	22.3
Capital.....	\$939,691,255	\$522,548,083	79.8
Services.....	276,868,822	126,494,933	118.8
Salaries.....	79,094,350	37,297,456	112.1
Wages.....	197,774,472	89,197,477	121.7
Materials.....	1,059,597,484	388,714,859	172.6
Value of products.....	1,599,313,923	637,952,128	150.7
Value added by manufacture (value of products less cost of materials).....	539,716,439	249,237,269	116.5

¹ A minus sign (—) denotes decrease.

EDUCATION. The total enrollment in the public schools was 907,186, of whom 864,201 were white and 42,985 colored. The average daily attendance in 1920 was 531,221. Teachers in 1920 numbered 21,216 of whom 17,701 were female. The average monthly salaries of teachers in 1921 were \$116 (male) and \$81 female.

LEGISLATION. Among the measures passed in the legislative session of 1921, the following may be mentioned: Creating a State Department of Agriculture; providing for the establishment of branch banks in foreign countries or dependencies of the United States; provision for a State board of barber examiners; prohibition of the bribery of baseball players and employees of baseball groups; provision for pensions for the deserving blind; prescription for the treatment of new-born infants; creation of a State department of the budget; creation of social welfare boards in cities of the

respect to the care and hygiene of the teeth; requiring owners of dogs exposed to rabies to kill or immunize them; providing for the licensing, regulation and supervision of maternity hospitals; creating a State Board of Immigration; defining the terms upon which group insurance may be written; prohibiting the sale of intoxicating liquors by wholesale druggists under any Federal permit or license, except those whose stock meets certain specific requirements defined in the act; provision for the maintenance of free county libraries; requirements in respect to the inspection of cattle before removal from any county of the State; declaring certain places at which cattle are bought and sold to be public markets and prescribing the rules for them; a similar law in respect to the markets for farm products; a resolution for the submission to the voters of an amendment to the constitution requiring the legislature to provide

for the collection of an annual tax or license fee on motor vehicles, etc., to be submitted at the next general election; relating to the limit of indebtedness and the issue of general liability bonds and public utility bonds by cities with a population of 75,000 or more; providing for an optional law for cities of the third class and for the city management form of government; providing for the confinement and treatment of victims of opium, cocaine, etc.; authorizing the establishment of high schools for colored children in all counties with a population of over 100,000; defining and regulating the practice of optometry; establishing a department of penal institutions; resolution to submit to the qualified voters an amendment of a section of the constitution relating to pay of members of the Assembly and expense of committees; resolution to submit to the qualified voters an amendment to the constitution authorizing the contraction of a debt and the issue of bonds not exceeding \$15,000,000 for the payment of a soldiers' bonus to ex-service men of the late war; creation of a State Department of Finance; resolution to submit to the qualified voters an amendment to the constitution which shall enable women to hold any office in the State; provision for a system of workmen's compensation, elective as to railway and private employers, but compulsory on the part of the State, counties, and other public employers, unless rejected by the employees; authorizing cities with a population between 200,000 and 600,000 to apply the zoning principle.

OFFICERS. Governor, Arthur M. Hyde; Lieutenant-Governor, Hiram Lloyd; Secretary of

MOLDAVIA. A northern division of Roumania; area before the war, 14,759 square miles; population (1913), 2,145,465. Chief towns with their populations before the war: Jassy, 76,120; Galatz, 73,512; Botushani, 32,874; Barlad, 25,367; and Focsani, 25,287.

MOLESWORTH, Mrs. British novelist, died in London in the latter part of July. As a popular and voluminous writer for children she was widely known in Great Britain. She was born of a Scotch family in Holland in May, 1839, and married Major Molesworth of the Royal Dragoons in 1861. Among her best known stories for the young were *Four Winds Farm*, *Cuckoo Clock*, and *Carrots*. She also showed great skill in writing for very small children, contributing some very popular stories to the *Child's Pictorial*.

MONACO. A principality on the Mediterranean, surrounded by the French department of Alpes Maritimes except on the coast; celebrated for the gambling resort, Monte Carlo; area, 8 square miles; population (1913), 22,956. The chief towns are: La Condamine, 11,082; Monte Carlo, 9627; Monaco, 2247. Its prince was an absolute ruler until Jan. 7, 1911, when a new constitution was proclaimed, providing for a national council assisted by a council of state which along with the prince exercises the legislative power. The prince in 1920 was Albert, born, Nov. 13, 1848.

MONEY. The following table shows coin and paper circulation of the United States for the fiscal years (ending June 30) 1913 to 1921, inclusive (see also FINANCIAL REVIEW; GOLD; and SILVER):

Year ending June 30	Coin, includ- ing bullion in Treasury	United States notes and bank notes	Total money	Coin, bullion, and paper money in Treasury, as assets	Circulation	Population	Circu- lation per capita
1913.....	2,611,571,094	1,108,498,922	3,720,070,016	356,331,567	3,363,738,449	97,337,000	34.56
1914.....	2,638,496,956	1,099,791,915	3,738,288,871	336,273,444	3,402,015,427	99,027,000	34.35
1915.....	2,739,241,077	1,250,215,109	3,989,456,186	420,236,612	3,569,219,574	100,725,000	35.44
1916.....	3,206,867,812	1,276,024,126	4,482,891,938	458,761,371	4,024,130,567	102,431,000	39.29
1917.....	3,785,690,795	1,622,299,231	5,407,990,026	644,414,394	4,763,575,632	104,145,000	45.74
1918.....	3,807,161,348	2,933,910,946	6,741,072,294	1,361,644,870	5,379,427,424	105,869,000	50.81
1919.....	3,577,607,287	3,941,181,713	7,518,789,000	1,752,759,027	5,766,029,973	106,136,000	54.33
1920.....	3,221,676,433	4,672,821,666	7,894,498,099	1,806,943,012	6,087,555,087	106,414,000	57.21
1921.....	3,786,221,846	4,241,173,650	8,027,395,496	2,250,958,023	5,776,437,473	108,087,000	53.44

State, Charles U. Becker; State Auditor, George E. Hackmann; State Treasurer, L. D. Thompson; Attorney-General, Jesse W. Barrett.

MISSOURI, UNIVERSITY OF. A co-educational State institution of higher education at Columbia, Mo.; founded in 1840. The total enrollment for the fall term of 1921 was 5058 of whom 3680 were at the departments at Columbia; 563 at the school of Mines and Metallurgy, situated at Rolla; 815 in the extension and correspondence departments. At Columbia the departments comprised Arts and Sciences (1760), Agriculture (402), Business and Public Administration (125), Education (225), Engineering (467), Graduate work (120), Journalism, (218), Law (119), Medicine (75). At Columbia there were 2515 men and 996 women. The income was \$1,833,356. The libraries contained 230,000 volumes. A gift of \$50,000 was received for a building for Home Economics. Acting President, J. C. Jones.

MITCHELL, CHARLES ANDREWS. See NE-CROLOGY.

MITNITZKY, IZZY. See MUSIC, Artists, Instrumentalists.

MONGOLIA. A large and ill-defined territory dependent on China situated to the west of Manchuria. Area, about 1,367,600 square miles; population about 2,600,000. Russia recognized Mongolia's right to self-government, Nov. 3, 1912, by a convention signed at Urga and undertook to guarantee her immunity from Chinese military occupation or colonization. On Nov. 5, 1913, Russia recognized outer Mongolia in an agreement with Pekin as part of Chinese territory and China recognized its autonomy. After the overthrow of the Czar and the establishment of the Soviet government, the arrangement with Russia was ineffective, and on Nov. 22, 1919, China so declared. On Feb. 25, 1921, the independence of the country was proclaimed and the local ruler known under the title of the Hutuktu was crowned king of Mongolia.

MONOPLANES. See AERONAUTICS.

MONTAGUE, DWIGHT PRESTON. Manufacturer, died at Chattanooga, Tenn., May 25. He was born at Chester, Ohio, July 20, 1853; studied at Cornell University and went into manufacturing at Chattanooga in 1875. He be-

came president of important coal and oil companies and was officer in other financial institutions.

MONTANA. POPULATION. According to the report of the census of 1920, there were 548,889 residents in the State, Jan. 1, 1920, as compared with 376,053 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	200,000	2,560,000	\$ 1,715,000
	1920	184,000	2,226,000	1,781,000
Oats.....	1921	469,000	10,787,000	3,668,000
	1920	533,000	11,726,000	5,980,000
Wheat.....	1921	2,297,000	28,168,000	23,943,000
	1920	2,787,000	28,690,000	36,724,000
Hay.....	1921	1,702,000	12,407,000	20,889,000
	1920	1,757,000	12,608,000	29,439,000

¹ Tons.

IRRIGATION. The following summary of drainage conditions of the State in 1920 with corresponding figures for 1910, was issued by the United States Bureau of the Census:

	Census of—	
	1920	1910
Number of all farms.....	57,677	26,214
Approximate land area of the state..... acres..	93,523,840	93,568,640
All land in farms..... acres..	35,070,656	13,545,603
Improved land in farms..... acres..	11,007,278	3,640,309
Number of farms irrigated.....	10,807	8,970
Area irrigated..... acres..	1,681,729	1,679,084
Area enterprises were capable of irrigating..... acres..	2,753,498	2,205,155
Area included in enterprises..... acres..	4,329,148	3,515,602
Per cent irrigated:		
Number of all farms.....	18.7	34.2
Approximate land area of state.....	1.8	1.8
Land in farms.....	4.8	12.4
Improved land in farms.....	15.3	46.1
Excess of area enterprises were capable of irrigating over area irrigated..... acres..	1,071,769	526,071
Excess of area included in enterprises over area irrigated..... acres..	2,647,419	1,836,518
Area of irrigated land reported as available for settlement..... acres..	207,530	.....
Capital invested.....	\$52,143,363	22,970,958
Average per acre enterprises were capable of irrigating.....	18.94	\$10.42
Estimated final cost of existing enterprises.....	70,079,028	32,382,077
Average per acre included in enterprises.....	16.19	9.21
Average cost of operation and maintenance per acre.....	1.26	0.89

MINERAL PRODUCTION. The value of the gold, silver, copper, lead, and zinc mined in Montana in 1921, according to the estimate of the United States Geological Survey, Department of the Interior, was about \$16,212,000, a decrease from the value of \$65,573,047 in 1920. The value of the output of gold decreased from \$1,851,165 in 1920 to about \$1,360,000 in 1921. The production of gold from copper ores was greatly reduced, and the output from siliceous ores and placers was much less than in 1920. The mine output of silver decreased from 12,579,178 ounces in 1920 to about 6,233,000 ounces in 1921, and the value of the output decreased from \$13,711,304 to about \$6,198,000. In past years most of the silver came from copper ores, but in 1921 many of the copper mines and other large producers of silver were idle the greater part of the year. The output of copper decreased from 177,059,260 pounds in 1920 to about 51,595,000 pounds in 1921. The mine production of lead decreased from 31,253,916 pounds in 1920 to about 21,674,000 pounds in 1921, and the value of the output decreased from \$2,500,313 to about \$997,000. The output of recoverable zinc

in Montana decreased from 184,337,786 pounds in 1920 to about 23,000,000 pounds in 1921. The value of the output decreased from \$14,931,361 to about \$1,155,000.

MANUFACTURES. The United States Bureau of the Census issued the following summary of the census of the State's manufactures in 1919 with corresponding figures for 1914:

	1919	1914
Number of establishments.....	1,290	939
Persons engaged.....	20,692	16,363
Proprietors and firm members..	1,200	832
Salaried employees.....	2,332	1,827
Wage earners (average number)	17,160	13,704
Primary horsepower.....	170,206	91,671
Capital.....	\$137,476,277	\$79,246,396
Salaries and wages.....	29,484,017	15,779,858
Salaries.....	4,741,455	2,778,653
Wages.....	24,742,562	13,001,205
Paid for contract work.....	555,842	789,361
Rent and taxes.....	2,212,765	1,597,778
Cost of materials.....	122,151,924	46,743,986
Value of products.....	166,664,518	84,446,136
Value added by manufacture.....	44,512,594	37,702,150

In 1920 there were six cities in the State—Anaconda, Billings, Butte, Great Falls, Helena, and Missoula—having more than 10,000 inhabitants. The cities, with an aggregate population of 117,205, formed 21.4 per cent of the total population for Montana in that year, and in 1919 reported 15.7 per cent of the value of the State's manufactured products. The large increases in wages, cost of materials, and the value of products, as presented in the table, are principally due to the change in industrial conditions brought about by the World War, and therefore cannot properly be used to measure the growth of manufactures during the census period 1914 to 1919. However, the increases in average number of wage earners and horsepower evidence the growth of the manufacturing activities of the State.

TRANSPORTATION. The total railroad mileage in Montana operated by seven different companies was 7196 miles for 1920. There was no new construction in 1921. The railroads are under the supervision of the State Railroad Commission.

EDUCATION. Educational statistics for 1921 were as follows: Number of children of school age,

161,626; total number of pupils enrolled in public schools, 126,238; average daily attendance, 91,744; number of teachers employed, 6215; average salary of teachers, \$974; total expense for educational purposes, \$12,904,270. The total number of pupils enrolled at the State University at Missoula was 1534; at the Agricultural College at Bozeman, 981; at the State School of Mines at Butte, 143; and at the State Normal School at Dillon, 1097. The number of teachers employed at the State University at Missoula was 74; at the Agricultural College at Bozeman, 81; at the State School of Mines at Butte, 12, and at the State Normal School at Dillon, 39.

FINANCE. The legislature amended the law changing the fiscal year and therefore the latest figures available on State finances were those for the period ending Nov. 30, 1920. Receipts for 1919 and 1920 were \$8,888,649; disbursements, \$9,406,057; balance, Nov. 30, 1920—\$2,418,476. The bonded debt of the State, Feb. 28, 1921, was \$2,852,588.

CHARITIES AND CORRECTIONS. State Prison at Deer Lodge, inmates, Dec. 1, 1921, 327; State Hospital for the Insane at Warm Springs, inmates, Dec. 1, 1921, 1451; State School for the Deaf, Dumb, Blind, and Feeble-minded at Boulder, inmates, April, deaf, 69; blind, 20; feeble-minded, 135; State Industrial School at Miles City, inmates, April 1, 1921, 130; State Orphans' Home at Twin Bridges, inmates, April 1, 1921, 224; State Vocational School for Girls at Helena, inmates, April 1, 1921, 45.

LEGISLATION. Revision of the tax laws and imposition of new taxes upon the production of oil, gas, minerals, etc., and consolidation of some and abolishment of other State laws were among the more important measures of the legislature this year.

OFFICERS. Governor, Joseph M. Dixon; Lieutenant-Governor, Nelson Story, Jr.; Secretary of State, Charles T. Stewart; Attorney-General, Wellington D. Rankin; Treasurer, J. W. Walker; Auditor, Insurance, and Investment Commissioner, George P. Porter; Superintendent Public Instruction, May Trumper.

JUDICIARY. Supreme Court: Chief Justice, Theodore Brantley; Associate Justices: U. L. Holloway, Charles H. Cooper, Albert J. Galen, F. B. Reynolds.

MONTANA, UNIVERSITY OF. A co-educational State institution of higher learning at Missoula, Mont.; founded in 1895. The enrollment for the fall session of 1921 was 687 and for the summer quarter 518. The faculty numbered 76 of whom 9 had been added in the course of the year. The income for the year ending July 1, 1922, was estimated at \$462,000. The library contained 50,000 bound volumes. At the November, 1920, election the voters passed two initiative measures: one providing 1½ mill tax for maintenance for the four institutions of the University of Montana; the other providing for the issue of bonds in the amount of five million dollars for buildings at the State educational and welfare institutions. Of this amount approximately 1¼ million was to be expended at the State University. Buildings were being constructed to cost when completed \$350,000. President, C. H. Clapp.

MONTELIUS, OSCAR. Anthropologist, died at Stockholm, November 4. He was in charge of the Swedish archaeological collection in the

National Historical Museum at Stockholm and an authority in prehistoric archaeology. He was born at Stockholm in 1843 and received the degree of Ph.D. at Upsala in 1869. He was connected with the Academy of Antiquities at Stockholm until 1888 when he was appointed Professor in the National Historical Museum. He was State Antiquarian 1907-13. He traveled widely, lectured in America as well as in Europe, and was a member of many learned bodies. After 1913 he devoted himself to finishing his uncompleted writings. The bibliography of his writings between 1869 and 1913 included 346 titles, and he not only contributed voluminously to the scientific press but he was editor of several periodicals. Aside from his care of the archaeological collections in the Museum and his special interest in the antiquities of the nation, he was a profound student of the prehistoric period in the rest of Europe as well as in the adjacent portions of Asia and Africa. His work was of special importance in placing the chronology of the Neolithic and Metal Ages on a sound basis. He bestowed his valuable personal library on the Academy of Antiquities in Stockholm in 1913. His chief works were as follows: *Sveriges Fornrid* (*Early Times in Sweden*), published in 1872-75; *Läsvet i Sverige under Hednatiden* (1873; English translation by F. H. Woods, 1888, entitled, "*The Civilization of Sweden in Heathen Times*"); *Sveriges Historia från äldsta tid till våra dagar* (1875-77; *Sweden's History from Earliest Times to Our Own Day*); *The Age of Bronze in Egypt* (Ann. Rep. Smithsonian Inst., 1890); *La Civilisation en Italie depuis l'introduction des métaux*, 1895-15; and numerous important papers, especially on such topics as prehistoric chronology, archaeologic methods, typology, etc., etc.

MONTENEGRO. A Balkan state formed after Dec. 1, 1918, a part of Jugo-Slavia; bounded by Serbia on the east, Albania on the south, Dalmatia on the west and Herzegovina on the west and north. Area before the war, 5603 square miles; population, Jan. 1, 1917, 436,789. In 1920 the area of Montenegro as part of the Jugo-Slav state was placed at only 3536 square miles; and the population, at 238,423. Capital, Cetinje, with a population of 5500. Other towns with their estimated populations are: Podgoritzza, 14,000; Ipek or Pets, 14,000; Djakovka or Djakovitzza, 23,000. The demand for the recognition of separate nationality continued during 1921. See JUGO-SLAVIA.

HISTORY. Soon after the armistice the National Council of Montenegro voted to join the new Jugo-Slav state, and dethroned King Nicholas, accusing him of treason during the late war. The charges against Nicholas and the answer to them on the part of his supporters have been noted in preceding YEAR BOOKS. After his death the attempt of his partisans to push the movement for the independence of Montenegro were less in evidence. They were said to have been kept alive for the most part by Italy as a part of her general campaign against Jugo-Slavia. Italy's support, if it were ever really given, ceased after the death of King Peter when she pursued a policy of friendship toward Jugo-Slavia. Down to that time Italy had maintained a Montenegrin Consulate at Rome, paying for that purpose some 20,000,000

lire a year. It was charged that some of this money was spent in propaganda against Jugo-Slavia, and the police after a visit of search, August 23, were said to have secured evidence against the members. Meanwhile an investigation was going on into the charges made by Montegrins that the Jugo-Slavs had been guilty of various atrocities. As a result it was reported that no basis could be found for these charges, and that the Serbians had respected the rights of the Montenegrins and even their interests by retaining Montenegrin officials in their positions and Montenegrin officers at the same rank in the army as they had held in the former army of King Nicholas. Many points were brought out by the Italian investigation favoring the side of the Jugo-Slavs and advancing arguments for the inclusion of Montenegro in the new state.

MONTESQUIOU-FEZENSAC, COUNT ROBERT DE. French poet, died at Mentone, France, December 14. His first successful verses were published in 1892 under the title of *Les Chauves-Souris*. He was born in Paris in 1855, a descendant of the celebrated noble house of Armagnac, and was a close friend of Paul Verlaine. In 1903 he delivered a course of lectures in New York. From his ancestors he inherited two celebrated chateaux and the Pavillon des Muses at Neuilly, built by Louis XVI.

MONTREAL, QUE. See GARBAGE AND REFUSE DISPOSAL.

MONTSERRAT. A presidency of the Leeward Islands (q. v.).

MOON, JOHN AUSTIN. Congressman, died at Chattanooga, Tenn., June 26. He was born in Virginia, April 22, 1855; and educated at King College, Bristol, Tenn. He was judge of the circuit court in Tennessee from 1889 to 1897. He was a delegate to the Democratic National Convention of 1900, and a member of Congress from 1897 to 1921.

MOORE, FRANK A. Judge, died in 1921. He was born at Ellsworth, Maine, Nov. 5, 1844; educated in the public schools and at a normal school; and was superintendent of schools in Hardin County, Iowa, from 1872 to 1876. He was admitted to the bar in 1874 and practiced law in Oregon after 1877, where he was county judge from 1882 to 1886, and a member of the Oregon senate from 1888 to 1892. He was associate-justice of the supreme court of Oregon after 1892.

MORAVIA. Before the downfall of the Austro-Hungarian monarchy, a crownland of Austria; included after 1918 in the new state of Czecho-Slovakia (q. v.); bounded by Russia, Austria, Silesia, and Hungary. Area before the war, 8584 square miles; population, estimated in 1913 at 2,666,613. According to the census of 1910, 1,868,971 or 71¼ per cent spoke Bohemian. Capital, Brunn, with a population in 1910 of 126,737.

MORAVIANS. A denomination founded in Bohemia in 1457 and which began work in this country in Georgia in 1735 as a missionary enterprise. It is composed of three branches: the Moravian Church (Unitas Fratrum), Bohemian and Moravian Brethren (Evangelical Union), and Independent Moravian Churches. The Unitas Fratrum, or the Moravian Church is the largest of the denomination. Statistics for this branch in 1921 showed 26,373 members, 155 ministers, 117

churches, and total valuation of church property of \$1,368,220. Mission provinces number 11, including Labrador, Alaska, California Indians, Jamaica, West Indies, Nicaragua, Demerara, Surinam, South Africa, and West Himalaya, and converts in 1921 totaled 105,189. There are 7 educational institutions of the denomination, of which may be mentioned the Moravian College and Theological Seminary of Bethlehem, Pa., as the most prominent. In 1921 the Evangelical Union of Bohemian and Moravian Brethren had 1714 members, 13 church edifices, and 4 ordained ministers. Statistics for the Independent Moravian Churches showed 320 members in 3 churches. The official journal of the Northern Province of the Moravian Church in America is the *Moravian*, and for the Southern Province *The Wachovia Moravian*. Statistics for the International Moravian Church, which includes the Continental Province, Czecho-Slovakian Province, British Province, and North and South American Provinces, give a total membership of 53,819 on Jan. 1, 1921, 197 congregations, and 35,669 communicants. Foreign Missions and Affiliated Societies in Europe totaled 323 congregations, 35,040 communicants, and total membership of 175,189 persons.

MORF, HEINRICH. See NECROLOGY.

MORINI, ERIKA. See MUSIC, Artists, Instrumentalists.

MOROCCO. The largest of the Barbary states situated in the northwestern part of Africa on the eastern shore of the Atlantic ocean between 27° and 36° north latitude and 1° and 11° 40' west longitude and bounded on the north by the North sea and south by the Mediterranean sea, Algeria, and the desert of Sahara. It comprises the kingdom of Fez and Morocco north of the Atlas mountains and the territories of Sūs, Brā, Wadi Taflet, Tuat, and other regions in the south, which are subdivided into 33 districts each under a "kaid." In 1912 it became a French protectorate with the exception of the Spanish zone extending 207 miles along the Mediterranean sea from the Atlantic sea to the Mulawia river, which is administered by Spain; and the port of Tangier with its hinterland of about 140 square miles which is under international control. The area of the French protectorate is given at 160,711 square miles by some authorities, and the Spanish zone at 8740 square miles. Other estimates, however, place it higher, namely, at about 231,500 square miles of which Spain claims about 10,000 in the north zone and 960 in the region of Ifni on the west coast. In 1921 the area effectively occupied and controlled by the French was placed at 92,664 square miles. The estimates for population vary, but a recent one places it at 7,023,000 of which 1,075,250 were in the Spanish zone. The average density was on the basis of these figures 41 persons to the square mile. In the French zone in 1920 there were in the schools a total of 793 teachers and 24,059 pupils. In the Spanish zone the total number of pupils in that year was placed at 2180.

PRODUCTION. The only important occupation is agriculture. Only about 10 per cent of the population live in the ports and cities, the great majority living in the country districts and supporting themselves by food production and cattle-raising. The arable lands practically all

within the limits of the French zone, which, however, for the most part is mountainous leaving only the northeastern part and the great plains for agriculture. The total area available for cultivation is placed at 36,700 square miles and the area actually cultivated at only about 8500 square miles. The wheat grown is mainly of the hard variety and the soft wheat was formerly unknown but under official encouragement a considerable acreage has been planted with it. Barley, oats, corn, and sorghum are also raised. In 1920 considerable progress was made in the matter of agricultural coöperation. Groups in the farming communities were subsidized by the French government and showed a readiness to adopt modern methods. Measures for the organization of agricultural credit had also been taken and since 1917 the government has done much to promote land settlement. The production in 1919 totaled 48,384,882 bushels, a considerable falling off from each of the last four years. Barley and wheat make up the larger part of the production. In 1920 the estimates of these two crops were: Barley, 33,825,000 bushels; wheat 18,623,000 bushels. Comparatively few Europeans have been engaged in agriculture although the area in their possession has been estimated at 444,780 acres of which 370,650 were in the hands of Frenchmen. Among the landholders were several companies engaged in the exploitation of large tracts. After 1907 a considerable number of European settlers entered the country from Algeria. The agricultural resources though rich have not been adequately developed but improvements were under consideration in 1920 and new methods of cultivation had already been introduced along with the teaching of agriculture. Agricultural education made considerable progress in 1921. The teachings of the agricultural normal school were put into practice on farms in the neighborhood of Fes and Casa-blanca and promised excellent results. The colony has been the favorite destination of French emigrants who settle there at the rate of thousands a month. Manufactures have rapidly developed. The total French capital in industry rose from 36,240,000 francs in 1918 to 56,438,000 francs. Their industries, however, are still far below their capacity, with the workmen employed numbering only about 3155.

COMMERCE. Morocco was no exception to the rule that the war turned the attention of France to the great resources of her colonies. The riches of the country were in fact not appreciated until the war. These included not only vast mineral resources, but great agricultural possibilities. As to her trade, the external commerce in the French zone amounted in 1917 to 319,579,618 francs; in 1919, to 574,391,672; and in 1920, to 1,058,289,333. The value of the imports rose from 215,370,537 francs in 1917 to 812,908,482 in 1920. The exports during the same period rose from 207,579,581 to 245,980,851. The above figures do not give a clear idea of the quantity on account of the fluctuations of price, and the tonnage had not increased in proportion to the increase in value. Imports in 1920 showed a tonnage of 388,201, as compared with 246,301 in 1919; exports showed a decrease, being 164,674 in 1920 against 203,249 in 1919. The

mother country had the advantage in imports but England followed closely behind. The trade of the United States showed a great increase from the time of the war, mounting from about 6,000,000 francs in 1916 to 25,500,000 in 1920. The principal products imported from the United States were, in order of their value in 1920: Petrol, coke, petroleum, iron products, sugar, motors, coffee. Meanwhile the imports from Spain showed a corresponding diminution. Before 1914 exports from Morocco varied between 58,000,000 francs and 20,000,000 francs according to the nature of the agricultural season. Over 75 per cent of the Moroccan exports went to France, other Powers receiving comparatively small portions. Among the principal products exported may be mentioned: Wheat, barley, corn, almonds, grain, linseed, dry peas, various spices, eggs, etc.

RAILWAYS. The section of narrow-gauge military railroad which had been under construction for some time between the cities of Fes and Taza was officially opened to traffic on July 31, 1921, thus linking up the Algerian and Moroccan railway systems. As these military lines were available for the transportation of merchandise, the completion of the Fes-Taza section facilitated overland commercial relations between Morocco and Algeria.

FINANCE. The total debt of French Morocco amounted to \$78,200,000, including the loans of 1904, 1910, and 1914, which amounted, respectively, to \$12,000,000, \$19,500,000, and \$32,800,000. The loan of 1914 was increased in 1916 to \$46,700,000 and guaranteed by France. Under the 1914 loan, 4 per cent bonds were issued in that year to the amount of \$13,500,000, and 5 per cent bonds were issued in March, 1918, for the remaining \$33,200,000. From the proceeds of the 1914 loan were paid the debts of the Moorish government; the expenses of the creation of the port of Casablanca; the establishment of a road system; the construction of hospitals, schools, and colleges; the installation of telegraph and telephone lines; the building of municipal public works; and the protection of forests. Inasmuch as the amounts of the above loans were exhausted and the ordinary funds available were inadequate to allow the intensive development of natural resources, the French government authorized the protectorate administration, on August 19, 1920, to contract a public loan of \$143,629,343, to be used approximately as follows:

Construction of administration buildings	\$ 8,494,308
Construction of harbor works	54,054,054
Extension of road system	11,583,011
Development of hydraulic resources	17,374,517
First capital of phosphate monopoly	6,949,806
Posts, telegraphs, and telephones	13,706,563
Health service	8,301,158
Public instruction	7,722,007
Forestry	2,895,753
Conservation of Government property	3,505,312
Agriculture	5,791,505
All other purposes	3,251,451
Total	\$143,629,344

DEFENSE. In the French zone on March 1, 1920, the army was placed at 72,297 of whom 14,129 were of Moroccan auxiliary troops. The army is under the supreme command of the French resident-general, and is divided into five commands, corresponding to

the respective areas of Rabat, Fes, Casablanca, Meknes and Marrakesh, and Taza.

GOVERNMENT. The French zone is under a protectorate at the head of which is the French resident-general. The sultan, theoretically an absolute monarch, governs in accordance with the advice of the resident-general. Foreign affairs are under direct French control, and the officer in command of French troops is also minister of war. Sultan in 1921, Mulai Yusef who succeeded, August 18, 1912; French resident-general, General Lyautey. The rights of France and Spain over their respective zones in Morocco were determined by negotiations, termed in the Franco-Spanish Treaty of Madrid, signed, Nov. 27, 1912. The Spanish zone is administered under the direction of the Spanish higher commissioner and by a calipha, appointed by the sultan from two candidates presented by the Spanish government. Spanish high commissioner in 1921, General Damaso Berenguer, appointed Jan. 25, 1919. Calipha, Mulai el-Mehdi, appointed, April 19, 1913.

HISTORY

WAR IN SPANISH MOROCCO. On July 15 serious revolts among the Riff tribes in the Spanish zone of Morocco were reported. On August 5, the Spanish forces lost Nador and Zeluan, and the Spanish general Silvestre was reported to have committed suicide. On August 11 the Spanish post at Mount Arruit and the Spanish general Navarro were captured by the rebels. By August 28 the revolt in Morocco had spread to El Araish and 400 Spanish casualties were reported. Meanwhile on August 16 a body under General Sanjurjo captured Sidi Amaran which commanded the approach to the peninsula on which Melilla is situated; on August 20-27 Spanish warships bombarded the Moors on the coast between Cape Tres Forcas and Alhucemas; and on September 4 the Spaniards raised the siege of Mezquita. Nevertheless, some reverses had occurred during the same period. For example, the Moors captured Sheshuan in the western part of the Spanish zone, and Peñon de Vales, an island lying to the east of Ceuta; and soon afterwards the town of Tefer, also fell into their hands.

It was plain that the entire Spanish zone had risen against the mother country. This was attributed by critics of Spanish colonial policy to the bad management of Spanish officials. It was remarked that while Spain might be famous as a conquering nation, she was unable to administer the colonies she acquired. There had been many rash acts committed by the Spanish commanders in Morocco and a number of serious disasters involving heavy losses of life had occurred in consequence. General Sylvester, a veteran of the Cuban war, renowned for bravery, showed little skill in dealing with the natives and morally offended the leader of the insurrection, Abdel Kerim. This occurred at a time when the natives generally were exasperated against Spanish rule, and as a result all the tribes of the Melilla region revolted and immediately afterwards the entire population of the Riff followed suit. The Spanish authorities seemed not to have contemplated this possibility and at any rate they were unprepared for it. They met the emergency, however, with great courage

and heavy reinforcements were rapidly dispatched to the front.

Spain began to retrieve her defeats in September. A Spanish offensive was carried out under the High Commissioner, General Berenguer, with 60,000 effective troops, September 10. In the first place after a succession of spirited charges the Spanish troops captured the enemy's position on Mount Gurugu which had for a long time past been bombarding the southern outskirts of Melilla and blocking the attempt to recover the railway line running to the south of that city. Then, on September 17, the town of Nador along with its suburb was taken and a Spanish column was blocking the ravines leading down from Mount Gurugu. At the same time light batteries on the coast and guns from the fleet were shelling the sides of the mountain, and the cavalry had gained a position from which it could sweep the plains in the neighborhood of Zeluan and gain access to that position. Strong posts were captured by the Spanish columns on October 2, and by October 14 the high peaks of the Gurugu range were taken. On October 14 came the news that Zeluan had been captured. Between September and this latter date all the immediate objectives of the campaign had been achieved; and on October 16 it was announced that the Spanish government had obtained the consent of the Sultan to an arrangement that would include the line of the heights of the Gurugu in the Spanish military zone of Melilla. According to the English press reports, this region would protect against possible attacks from the tribes the city of Melilla which had been constantly threatened in recent engagements. At this time Spain was negotiating with the rebel leader from whom she demanded the punishment of the authors of the recent massacres and the cession of Alhercemas in order that a military post might be established there. A complicated situation arose in respect to the relations with the native chiefs and in connection with the treaty with France. The famous Riff chief Raisuli, was a fugitive from French territory and along with other chiefs sent messages announcing loyalty to Spain. But these chiefs were not loyal to the Sultan of Morocco, under whose authority Spain according to the Franco-Spanish treaty was ruling her zone as a mandatar. If Spain accepted the terms offered by the leaders of the Riff Berber insurgents, she would be disloyal to the sultan and to the French. Therefore the problem before the Spanish Prime Minister, Maura, was a difficult one, and many believed that the only solution was to crush the rebel leader Abd-el-Krim by force of arms; and yet the latter's peace terms were favorable to Spain and her only objection was from the point of view above mentioned. He asked for the setting up of a Spanish protectorate over the Spanish zone without regard to the rule of the sultan, and promised to turn over to Spain the native chiefs who had been responsible for cruelties to prisoners. In the closing months of the year there were frequent reports of difficulties in the army administration, arising from the military juntas at Madrid. The officers in the field in Morocco objected to the appointment of members of these juntas to positions on the new general staff, and the juntas retaliated by

establishing a committee of defense. In Morocco General Sanjurjo occupied the last refuge of the enemy in the Melilla zone, namely, the position of Rasmedura, November 22. In December the Moors were continuing the release of the Spanish prisoners captured in July.

THE QUESTION OF TANGIER. The government of Tangier rested upon a provisional arrangement determined after the diplomatic agreements of 1904 in respect to Spanish and French zones in Morocco. The British government in accordance with its policy of opposing the control of a single power over both shores of the Strait of Gibraltar demanded that Tangier should be placed under a special administration and that its military should be neutralized. This resulted in the government of Tangier and its surrounding territory by a number of commissions under the control of the diplomatic corps. For some years the question of status was raised by both France and Spain, but especially the former. The sovereignty of the sultan was recognized over the district. The French authorities were unwilling to consent to any conditions that would either compromise the rights of the sultan or injure the dominant French interest at Tangier, including various public institutions of which the French government had assumed the direction, and the diverse French business establishments and properties. France was insisting that in the long run the unity of Morocco required a change in the present situation, which change would extend the influence of France to point out that it had been a mistake to cut the Empire of Morocco into three parts, for the country presented a racial and religious unity. See **EXPLORATION**.

MORRIS, GEORGE PERRY. Author and journalist, died, June 15. He was born at Montclair, N. J., Feb. 18, 1864; graduated at Rutgers College in 1888; and pursued studies in economics and history at Johns Hopkins. He was on the staff successively of the *Mail and Express*, New York; *The Congregationalist*, Boston; and *The Christian Science Monitor*, Boston. After 1918 he was editor of the *Advocate of Peace*. He wrote: *The Norwegian Company System* (1894); and *Historic Towns of New England* (1898); and contributed largely to the periodical press.

MORRISON, HENRY C. Methodist Episcopal bishop, died at Leesburg, Fla., December 21. He was born in Montgomery County, Tenn., May 30, 1842. He was pastor at Atlanta, Ga., in 1886; missionary secretary, 1890-98, and bishop after 1898. He was a leader in the mission work of his church.

MORRISSEY, ANDREW. Clergyman, died in Paris, France, May 28. He was born in Ireland, in January, 1860; came to this country and graduated at the University of Notre Dame. He became professor of mathematics in the Sacred Heart College, Watertown, Wis., in 1880; and was director of studies of Notre Dame from 1885 to 1892, and president from 1893 to 1905. After which he was president of its board of trustees. He was known as a lecturer on education and other subjects.

MORRISSEY, ANDREW MARCUS. Lawyer, died in 1921. He was born at Livonia, N. Y., Dec. 27, 1871; educated at the public schools; admitted to the bar in Nebraska in 1896, and practiced law in that State. He was appointed

chief justice of the supreme court of Nebraska in January, 1915, and elected for the term ending Jan. 6, 1921.

MORSE, CHARLES HOMER. Manufacturer, died, May 5. He was born at St. Johnsbury, Vt., Sept. 23, 1833; and educated at the academy there. He became a clerk in Fairbanks and Company, the great scale manufacturers, and rose to be a member of the firm and chairman of the board of directors. He was also director of other important enterprises.

MORSE, ROBERT MCNEIL. See **NECROLOGY**.

MOTOR BOATING. See **YACHTING**.

MOTOR CARS. See **AUTOMOBILES**.

MOTOR FUEL. See **CHEMISTRY, INDUSTRIAL**.

MOULE, CHARLES WALTER. British educator, died in May. He was a fellow of Corpus Christi College, Cambridge, and became Senior Fellow and President. He was born, Feb. 9, 1834, entered Cambridge in 1854, and graduated in the Classical Tripos in 1857. From 1879 to 1892 he was tutor of Corpus Christi and was later lecturer. He resigned in 1908 to take charge of the college library.

MOULTON, JOHN FLETCHER, LORD. British lawyer, died in London, England, March 9. Latterly he was well known for his public services as chief of the explosive supplies division during the war. He was born, Nov. 18, 1844, and educated at Cambridge where he was Senior Wrangler, and after taking his degree, remained as a fellow and lecturer for about three years. Having studied law he was called to the bar in 1874 and after 1885 secured an extraordinary large practice, being especially known in connection with patent suits. He was appointed Lord Justice in 1906 and in 1912 Lord of Appeal in Ordinary. Meanwhile he was elected to Parliament and took an active part in the patent legislation of 1900-05. During the war as chief of the explosive supplies division of the ministry of munitions he showed great energy and succeeded in carrying through policies that facilitated the production of explosives.

MOUNT EVEREST. See **EXPLORATION**.

MOUNT HOLYOKE COLLEGE. An institution of the higher learning for women at South Hadley, Mass.; founded in 1837. The enrollment for the fall of 1921 was 795. The faculty numbered 95 and there were besides 34 assistants, readers, curators, etc. The productive funds were \$2,220,879 and the income was \$108,333. The library contained 77,163 volumes and pamphlets. The college was completing an additional endowment fund of \$2,000,000 and raising \$1,000,000 for building purposes. It was expected that a new dormitory and a new science building for Botany, Zoology, Physiology, and Geology would be erected in the near future. President, Mary Emma Wooley, Litt.D., L.H.D.

MOUNT STEPHEN, LORD. See **GEORGE STEPHEN**.

MOVING PICTURES. In spite of the business depression prevailing in 1921, there was a fair measure of success in the moving picture industry. While complaints of diminished receipts were not uncommon, the industry had begun to feel the effect of the public's lessened purchasing power during the latter half of 1920 and the stronger distributing companies and well-established theatres were more than able to hold their own. Many new photoplays were brought out,

but none of them stood out for any especially new idea, nor in the method of treatment of their themes. As an art, the photoplay did not make any appreciable headway in 1921; and the competition of European films, while not yet to be reckoned with, was nevertheless a possibility of the near future. German and Italian producers exhibited, through American agencies, a number of excellently conceived and artistically staged plays and it was reported that the coming year would witness many more from the same sources, owing to the popularity of these first ventures. The opinion of many critics was decidedly favorable to the foreign films on account of their artistic portrayal of historical events, a more careful attention to detail and at least as good photography as the American product. The "talking moving picture," referred to in the 1920 YEAR BOOK (q. v.), seems to have made no headway in public appreciation during the year; and while several skilled investigators were making extended researches in the realm of colored moving pictures, nothing of note was brought to light. Audiences were much the same, both in make-up and appreciative powers. The former idea that moving picture competition was a serious menace to the success of legitimate theatres died a natural death. Both forms of entertainment had developed in their own individual way and each now has its followers. Many are patrons of both, according as their taste or mood decides for them; frequently, also, as the pocketbook determines.

Censorship, as usual, was a live topic. The State of New York created a Moving Picture Commission, which began its organized activities on August 1. Two men and one woman constituted its membership, which was empowered to examine and license all films submitted for exhibition within the State. Their report stated that they had examined, up to the end of the year, 1330 films that had not been shown previously, of which they approved 1170 without any eliminations. In 160 of the number, scenes or titles were ordered eliminated and 5 were unconditionally rejected. They asked for an additional force of inspectors in order to determine whether any unlicensed films were being exhibited. As in the past, there was considerable confusion and lack of uniformity in censorship laws in the different states and no measure covering the matter had made any perceptible headway in Congress.

In several instances, popular attention was centred for a time upon certain persons, who having figured prominently in some phase of scandal or crime, sought to increase their popularity through the medium of films made expressly to feature them as a hero or heroine. Due to the power of discrimination of the public taste, these ventures were usually unsuccessful in attracting the better class of patrons and the verdict of the latter soon determined the length of run of such productions. Some ingenious devices making use of moving pictures should be mentioned. A French inventor brought out a small camera, only 4×5×6½ inches in size, provided with a clockwork motor for operating a film, of which 20 feet could be placed in the box and enabling the operator to make twenty pictures. If desired, single exposures could be made as with an ordinary camera. In Germany,

a moving picture camera was developed for showing the progress of a surgical operation, which, while not new, had certain novel features. The camera was mounted on a long arm suspended from the ceiling directly over the operating table. It could be focussed by the surgeon by means of a sight arranged like a periscope, placed within easy reach. The camera was motor-driven, with necessary control switches conveniently placed.

MOZAMBIQUE. See PORTUGUESE EAST AFRICA.

MULHOLLAND, ROSA (LADY GILBERT). Author, died at Dublin, Ireland, April 26. She was born at Belfast, Ireland, and married in 1891 Sir John T. Gilbert. She wrote a long series of novels pertaining to Irish life, including: *A Fair Emigrant*; *Banshee Castle*; *Helty Gray*; *The Walking Trees*; *Cynthia's Shock*; *Terry*; *The Squire's Granddaughters*; *The Tragedy of Chris*; *Father Tim*; *Twin Sisters*; *Narcissa's Ring* (1915), etc., and volumes of verse including, *Vagrant Verses* and *Spirit and Dust*.

MULRY, JOSEPH ALOYSIUS. University president, died at Philadelphia, Pa., August 31. See *Who's Who*, volume 10.

MUNICIPAL GOVERNMENT. Accessions to the already long list of cities which have adopted the commission-manager form of city government continued through the year. By far the most notable addition to the list was Cleveland, Ohio, with its population of 797,000. This makes six cities with populations of more than 100,000 that have adopted the manager plan, but at Cleveland the new plan will not go into effect until Jan. 1, 1924. The other five cities in order of population are: Akron, Ohio, 208,000; Dayton, Ohio, 153,000; Grand Rapids, Mich., 138,000; Nashville, Tenn., 118,000; Norfolk, Va., 116,000. (For list of nearly two hundred cities which have adopted the standard form of city-manager plan, as recognized by the National Municipal League, see the accompanying table, including its footnote. At least three State legislatures authorized the adoption of the city-manager plan during the year. In both Indiana and Wyoming the authorization extends to any city, and in Missouri it applies only to third-class cities. The legislature of New Jersey again defeated a permissive city-manager bill. The strong and persistent opposition to the mere granting of permission to the municipalities of New Jersey to adopt the manager plan is said to come from the commissioners and their friends in the many cities and towns which have adopted the plain commission plan. The new Cleveland charter is notable not only for the size of the city but also because it provides for the election of the members of the commission or council by proportional representation, and for a considerably larger number of councilmen than usual, the number heretofore having been restricted generally to five and in a very few cases to seven or nine regardless of the size of the city. The twenty-five councilmen at Cleveland will be chosen from four districts, the proportional representation plan applying in each district. The unusually large council and the division of the city into districts are designed to meet objections that have been urged to the commission plan for large cities. The district representation principle is acknowledged without going to the extent of the common plan of ward representation, while

within each district the proportional representation plan is designed to give any large political group a voice in the city legislative body. The city manager at Cleveland will be appointed by the City Council and responsible to it as in other commission-manager cities. The new Cleveland charter was framed by a representative committee of citizens and in both the framing of the charter and in the campaign for its adoption co-operation was given by the National Municipal League through A. R. Hatton, field agent of the League. In Connecticut the city of New London adopted the commission-manager plan by a good majority, while New Haven voted it down by some 19,000 to 8000 votes out of a possible 46,000. The New London Council consists of seven councilmen at large at salaries of \$300 a year each. The manager is paid \$5000 a year. The city was previously governed by a Mayor and Council, and the town of New London by three selectmen. The latter sat with the Council, making a total membership of eighteen. *Lockport, N. Y.*, on Nov. 8, rejected the commission-manager plan by a small majority, this being the third adverse vote on the plan in that city—an interesting incident in view of the fact that in 1910 the Lockport Board of Trade formed a city-manager charter which became known as "The Lockport Plan." This charter failed of authorization by the state legislature. Since then a statute has been enacted which permits New York municipalities to adopt one of several plans of government. *Kalamazoo, Mich.*, voted down a proposal to abandon the commission-manager plan after it had been in use for some three years. At Dayton, Ohio, the first large city to adopt the commission-manager plan, an attempt was made to secure a popular vote on abandoning the plan, but the attempt failed. At *Buffalo, N. Y.*, which has the plain commission plan of government the Mayor vetoed a bill that had been passed by the New York Legislature that was designed to substitute for the commission of five members a council of fifteen members and a mayor with large powers, the councilmen to be elected six at large and nine from "council zones." At the hearings on this bill before the Mayor no one came forward to sponsor it, and the bill was characterized as being of "mysterious" origin. Another defeat of a change back from the plain commission to the mayor-and-council plan of city government proposal to occurred at *St. Paul, Minn.*, late in the year where there was a popular vote of over 16,000 for the change and nearly 22,000 against it. The proposed new charter for St. Paul provided for the federal plan with complete separation of the legislative from the executive branches of the city government. Had the proposal carried, there would have been a mayor with broad executive powers elected at large and a council of fifteen members of which twelve would have been chosen, one each from twelve wards, and three, one each from three districts composed of four wards each. In October, *Lowell, Mass.*, voted to change back from the commission plan to the mayor-and-council plan. The council will consist of fifteen members, one each elected by nine wards and six at large. The mayor, who will appoint nearly all the administrative officers of the city, subject to confirmation by the council, will be paid \$5000 a year and councilmen only \$300 a year. There is a board of public service of three members, which

will appoint a city engineer, a superintendent of streets, and a superintendent of water-works. There is a board of health, park commission, a budget and auditing commission, and several other boards. It is a notable fact that in practically all of the new charters, adopted or rejected, whether of the commission, the commission-manager, or the old mayor-and-council type, provision is made for a small or at least relatively small council, the somewhat larger councils being proposed for larger cities. A *New York City* charter revision commission was appointed near the close of the year by Governor Miller under an act of the legislature. The commission consists of fifteen members, of whom eleven are citizens, this number including Francis M. Scott, chairman, and of the Mayor, the Comptroller, a borough president, and a member of the Board of Aldermen of New York City. It was expected that the commission would conduct hearings throughout the early part of the year, frame a charter and submit it to a special session of the legislature. A proposed charter designed to consolidate the county and the various city and other minor civil division government of *Alameda County, Calif.*, including Berkeley and Alameda and other cities and towns, was defeated toward the end of the year. Provision was made for borough governments within the county, but powers of these boroughs were considered by some to be weak and unsatisfactory. Montreal, Quebec, after a considerable period of being governed largely by an administrative commission created by the Provincial Legislature, voted on May 16 on alternative charters. By a majority of some 17,000 in a vote of 68,000 out of a possible 147,000 votes a mayor-and-council charter was adopted and a council-manager charter was defeated. The adopted charter, which went into effect on November 1, provides for a mayor and for a council of thirty-five members elected by plurality votes, one from each of thirty-five wards. There will be an executive committee of five councilmen, chosen by the council itself, and a director of municipal services, also appointed by the council, the latter to have such duties as may be assigned to him by the council from time to time. The mayor will be paid \$10,000 a year and the councilmen \$1500, with an additional \$1500 for the chairman of the executive committee and \$1000 extra for the other four members of the executive committee. The rejected alternative charter provided for a council of fifteen members chosen by proportional representation, five from each of three districts, and a general manager to be appointed by the council. The alternative plans were outlined in detail in the *Canadian Municipal Journal* for April, 1921. A description of the government of *Greater Berlin, Germany*, by C. A. Bratter of the editorial staff of the *Vossische Zeitung*, Berlin, appeared in the *New York Post*, Sept. 16, 1921. The new city has a population of about 3,800,000 and includes the eight cities, fifty-nine rural towns, and twenty-six large agricultural districts within a radius of about 20 kilometres from the former Royal Palace. It will be governed by a central council having 225 members and a "magistracy, the chief governing body," of thirty members. The greater city will be divided into twenty "Bezirks" or districts, each provided with an assembly of fifteen to forty-five members and an executive body, the "Bezirksant," com-

posed generally of seven members with a mayor at the head. The district government will be under the direction of the government of Greater Berlin.

ENGINEERS IN MUNICIPAL GOVERNMENT. A growing recognition of the value of engineers in municipal government is apparent in some quarters. At *Memphis, Tenn.*, on the city commission of five members there were two engineer members in 1921, besides which the city clerk, the chairman of the water board, the superintendent of water-works, and the city sanitary engineer were engineers. At *Miami Beach, Fla.*, there were two practicing civil engineers and one retired mechanical engineer on the City Council of seven members, while, besides the city engineer, the superintendent of water-works was an engineer and the city clerk was formerly an engineering draftsman and office manager. At *Cranford, N. J.*, a suburb of New York City with 6000 population, a number of the engineers residing in the town, supported by other citizens, urged the Town Council to conserve the town funds and increase the efficiency of municipal work by appointing a competent professional man as town engineer and paying him amply for his services. As a result, the council engaged an engineer at a salary of \$6000 a year or \$1 per capita of population. A considerable percentage of the city managers of the country are civil engineers and of these a number are paid salaries of from \$5000 to \$10,000, the latter by Norfolk, Va. See YEAR BOOK, CITY MANAGER'S ASSOCIATION.

MUNICIPAL BOND SALES AND FINANCIAL PROBLEMS. War and post-war conditions have increased the financial problems of cities. Construction costs and operating costs have been high, increasing the pressure for heavy bond issues with high interest rates, crowding the bonded debt limit of cities, and also pushing up tax rates, which latter are in many instances limited by state legislation. A large volume of much needed public-works construction was deferred in 1918 and later years and many, if not most, cities are still behind in this respect. During the latter part of the year, owing both to the pressure of deferred construction and to the more favorable bond market, municipal bond issues—which had already been running higher than in recent years—were put out in large volume. For the entire year 1921 a total of some billion and a quarter of municipal bonds were sold, these including, however, all state, country, school, irrigation, drainage and other district bond issues. Owing to the high cost of construction, the buying power of these bond issues was cut in half. Some details of these municipal bond issues, with their buying power, as determined by the *Engineering News-Record* construction cost index (based on cost of structural steel, cement, lumber, and labor prices) were published in the journal named for Jan. 5, 1922. Summaries of municipal bond issues for the year 1921, by cities, States, and groups of States by purposes for which the bonds were issued and by rate of interest, with some of the figures summarized and compared with earlier years, may be found in the *New York Commercial and Financial Chronicle* for June 26 and Dec. 29, 1921, with comparisons for earlier years, and a tabular summary for the past ten years may be found in the *New York Bond Buyer* for Jan. 7, 1922. See also CITY PLANNING, GARBAGE,

MUNICIPAL OWNERSHIP, SEWERAGE, WATER WORKS.

CITY-MANAGER MUNICIPALITIES CORRECTED TO JAN. 1, 1922

From *The Story of the City Manager Plan* compiled and published as a small pamphlet by the National Municipal League, 261 Broadway, New York City.

State	City	1920 Pop.	In effect
Aris.	Phoenix.....	29,053	Apr., 1914
Cal.	Alameda.....	28,806	May, 1917
	Alhambra.....	9,096	July, 1915
	Bakersfield.....	18,638	Apr., 1915
	Glendale.....	13,536	July, 1921
	Long Beach.....	55,593	July, 1921
	Pasadena.....	45,334	May, 1921
	Sacramento.....	65,857	July, 1921
	San José.....	39,604	July, 1916
	Santa Barbara.....	19,441	Jan., 1918
Colo.	Boulder.....	10,989	Jan., 1918
	Colorado Springs.....	29,572	Apr., 1921
	Durango.....	5,300	Mar., 1915
	Grand Junction.....	8,665	Jan., 1922
	Montrose.....	3,581	Feb., 1914
Conn.	New London.....	25,688	Oct., 1921
	Stratford.....	12,347	Oct., 1921
	W. Hartford.....	8,854	Apr., 1921
Fla.	Fort Myers.....	3,678	June, 1921
	Lake City.....	3,341	June, 1921
	Miami.....	29,549	June, 1921
	New Smyrna.....	3,000	Jan., 1921
	Ocala.....	5,610	Feb., 1918
	Punta Gorda.....	1,295	July, 1921
	St. Augustine.....	6,192	July, 1915
	Sanford.....	5,588	Jan., 1920
	Tallahassee.....	5,637	Feb., 1920
	Tampa.....	51,252	Jan., 1921
	W. Palm Beach.....	8,659	Dec., 1919
Ga.	Brunswick.....	14,413	Jan., 1921
	Cartersville.....	5,810	Aug., 1917
	Columbus.....	31,125	Jan., 1921
	Decatur.....	6,150	Dec., 1918
	Griffin.....	8,240	Dec., 1921
	Quitman.....	4,398	Dec., 1921
	Rome.....	13,252	Apr., 1919
	Tifton.....	3,500	Jan., 1921
Ind.	Michigan City.....	10,457	Jan., 1922
Iowa	Dubuque.....	39,141	June, 1920
	Webster City.....	6,000	Oct., 1916
Kans.	Atchison.....	12,360	Apr., 1921
	Belleville.....	2,500	Apr., 1921
	El Dorado.....	10,995	July, 1917
	Hays.....	2,339	May, 1919
	Kinsley.....	1,885	Apr., 1922
	McCracken.....	371	May, 1919
	St. Mary's.....	1,321	May, 1921
	Salina.....	15,085	Apr., 1923
	Stockton.....	1,324	Apr., 1921
	Wichita.....	72,128	Apr., 1917
	Winfield.....	7,933	Apr., 1921
Maine	Auburn.....	16,985	Jan., 1918
Mass.	Manfield.....	6,255	Feb., 1921
	Middleboro.....	8,543	Jan., 1921
	Norwood.....	12,627	Jan., 1915
	Stoughton.....	6,865	Jan., 1922
	Waltham.....	30,891	Jan., 1918
Mich.	Albion.....	8,354	Jan., 1918
	Alma.....	7,542	May, 1919
	Alpens.....	11,101	Apr., 1916
	Bay City.....	47,554	Apr., 1921
	Benton Harbor.....	12,227	July, 1921
	Big Rapids.....	5,100	Apr., 1914
	Birmingham.....	3,694	Apr., 1918
	Cadillac.....	9,734	Mar., 1914
	Crystal Falls.....	3,394	Apr., 1918
	Escanaba.....	13,103	Apr., 1922
	Grand Haven.....	7,224	Apr., 1915
	Grand Rapids.....	137,634	Mar., 1917
	Grosse Pte. Shores.....	400	June, 1916
	Jackson.....	48,374	Jan., 1915
	Kalamazoo.....	48,487	June, 1918
	Lapeer.....	4,500	May, 1919
	Manistee.....	9,690	May, 1914
	Maryville.....	3,000	Jan., 1921
	Mt. Pleasant.....	4,880	Mar., 1921
	Muskegon.....	36,570	Jan., 1920
	Otsego.....	4,000	May, 1918
	Petoskey.....	5,064	Apr., 1916
	Plymouth.....	2,500	Dec., 1917
	Pontiac.....	34,273	Nov., 1920
	Portland.....	2,747	Jan., 1919
	Royal Oak.....	6,000	May, 1918

State	City	1920 Pop.	In effect
Mich.	St. Johns	4,035	Aug., 1918
	Sault Ste. Marie	12,096	Dec., 1917
	Sturgis	5,995	Apr., 1921
	Three Rivers	5,209	Apr., 1918
Minn.	Anoka	4,287	Apr., 1914
	Columbus Heights	4,000	Aug., 1914
	Morris	3,500	Jan., 1914
	White Bear Lake	2,022	Oct., 1921
Mont.	Bozeman	6,183	Aug., 1921
Neb.	Alliance	3,737	Apr., 1921
N. Mex.	Albuquerque	15,157	Jan., 1918
N. Y.	Auburn	36,142	Jan., 1920
	Newburgh	30,272	Jan., 1916
	Niagara Falls	50,760	Jan., 1916
	Sherill	1,500	June, 1916
	Watertown	31,263	Jan., 1920
N. C.	Durham	21,000	May, 1921
	Elisabeth City	8,925	Apr., 1915
	Gastonia	12,871	Aug., 1919
	Goldboro	11,296	July, 1917
	Greensboro	19,746	May, 1921
	Hickory	5,076	May, 1913
	High Point	14,302	May, 1915
	Morganton	2,867	May, 1913
	Reidsville	5,333	May, 1922
	Thomasville	5,676	May, 1915
Ohio	Akron	208,435	Jan., 1920
	Ashtabula	22,082	Jan., 1916
	Cleveland	796,836	Jan., 1924
	Cleveland Heights	15,236	Jan., 1922
	Dayton	152,559	Jan., 1914
	E. Cleveland	27,292	Jan., 1918
	Gallipolis	6,070	Jan., 1918
	Lima	41,306	Jan., 1922
	Painesville	6,886	Jan., 1920
	Sandusky	22,897	Jan., 1916
	S. Charleston	1,500	Jan., 1918
	Springfield	60,840	Jan., 1914
	Westerville	3,500	Jan., 1918
	Xenia	9,110	Jan., 1918
Okla.	Ardmore	14,181	May, 1921
	Cherokee	3,100	Oct., 1920
	Coalgate	4,000	July, 1914
	Collinsville	3,500	Feb., 1914
	Duncan	3,463	Nov., 1920
	Lawton	9,000	Apr., 1921
	Madill	1,760	Nov., 1917
	Mangum	3,405	Nov., 1914
	McAlester	12,095	Nov., 1919
	Muskogee	30,277	Apr., 1920
	Norman	5,004	Sept., 1919
	Nowata	8,000	May, 1920
	Pawhuska	6,414	Apr., 1921
	Sallisaw	3,000	Nov., 1919
	Walters	3,600	Sept., 1919
	Woodward	3,895	
	Yale	2,601	May, 1921
Ore.	LaGrande	6,913	Oct., 1913
S. C.	Beaufort	3,700	May, 1915
	Rock Hill	8,809	Feb., 1915
	Sumter	9,508	Jan., 1913
S. Dak.	Rapid City	5,777	Feb., 1921
Tenn.	Alcoa	3,358	July, 1919
	Kingsport	5,692	Mar., 1917
	Murfreesboro	5,935	Oct., 1920
	Nashville	118,342	Apr., 1921
Tex.	Amarillo	15,494	Dec., 1913
	Beaumont	40,422	Apr., 1920
	Brownsville	11,791	Jan., 1915
	Brownwood	8,225	Apr., 1916
	Bryan	6,295	May, 1917
	Denton	7,626	Apr., 1914
	Eastland	9,368	Jan., 1919
	Lubbock	3,958	Jan., 1918
	Lufkin	4,878	Apr., 1918
	Ranger	18,295	May, 1919
	San Angelo	10,064	June, 1916
	Sherman	15,031	Apr., 1915
	Stamford	3,704	June, 1918
	Taylor	5,965	Apr., 1914
	Terrell	8,349	Aug., 1919
	Tyler	12,085	Apr., 1915
	Yoakum	7,500	Apr., 1915
Vt.	St. Albans	7,582	Mar., 1921
Va.	Alexandria	18,060	Sept., 1922
	Blackstone	2,000	June, 1914
	Bristol	6,720	Sept., 1919
	Hampton	6,138	Sept., 1920
	Lynchburg	30,071	Oct., 1920
	Newport News	35,596	Oct., 1920
	Norfolk	115,777	Sept., 1918
	Petersburg	31,002	Sept., 1920

State	City	1920 Pop.	In effect
Va.	Portsmouth	54,387	Jan., 1917
	Radford	4,627	Sept., 1920
	Roanoke	50,842	Sept., 1918
	Staunton	10,617	Sept., 1920
	Suffolk	9,123	Sept., 1919
W. Va.	Bluefield	15,283	June, 1921
	Clarksburg	28,000	Apr., 1921
	Charleston	38,008	May, 1915
	Morgantown	12,127	June, 1921
	Wheeling	54,324	July, 1917
Can.	Chatham, Ont.	10,700	Dec., 1921
	Grand Mere, P. Q.	9,000	Mar., 1920
	Westmount, P. Q.	14,579	Apr., 1913

There are, in addition, about eighty towns, mostly in States where city manager charters are not yet legalized, which employ so-called city managers by ordinance and under various make-shift conditions. Only the towns which have adopted the plan by charter are listed above.

MUNICIPAL LEAGUE, NATIONAL. See NATIONAL MUNICIPAL LEAGUE.

MUNICIPAL OWNERSHIP. A large majority of votes was cast against city purchase of the privately-owned gas works at Lowell, Mass., while Jersey City, N. J., voted about six to one in favor of municipal gas works. Immediately after the Jersey City election it was announced that the Public Service Gas Co., which supplies gas in Jersey City, Newark, and much additional territory, would fight the proposed city gas works in the courts. A year earlier, Newark, N. J., voted for a municipal light and power plant, but no funds for the purpose were provided. No progress has been made on the proposed municipal milk plant for Jamestown, N. Y., noted in the last previous YEAR BOOK. The banker whose bid for \$150,000 bonds for the proposed plant was accepted refused to take the bonds after they were printed in April, alleging that the city lacks authority to go into the milk business. With the purchase of the privately-owned garbage reduction plant by New Bedford, Mass., the list of cities which have bought or built such plants was increased to eleven, as follows: New Bedford, Rochester, Syracuse, and Schenectady, N. Y.; Philadelphia; Washington, D. C.; Akron, Cleveland, and Columbus, Ohio; Indianapolis, Ind.; Chicago. Under street railways it may be noted that the annual report on the municipal railways of San Francisco shows that on June 30, 1921, the city owned 67.12 miles of single track. The annual report of the Transit Commission of New York City for the year 1921 contains an outline of a tentative plan to readjust the entire local transportation system of the city, with provision municipal ownership of all the lines, with private operation under public control. At Toronto, Ont., the Toronto Transportation Commission took over the entire property of the Toronto Railway Co., at the expiration of the company's 30-year franchise on September 1. The city already owned and was operating 20½ miles of single track. It is stated that an agreement has been reached under which the commission will take over the various radial or suburban lines that enter the city, giving the city possession of 163 miles of single track.

MURAT, G. St. Ex-director of the Meteorological Institute of Roumania, died January 12.

MURPHY, JOHN FRANCIS. American landscape painter, died January 30. He was born at Oswego, N. Y., Dec. 11, 1853; and first ex-

hibited at the National Academy of Design in 1876. His work has been admired greatly for its refinement and poetic sentiment, its marked simplicity of style and appreciation of the quiet aspects of nature. Among his paintings the following representatives of his work may be mentioned: "October"; "The Path to the Village"; "Indian Summer"; "The Old Barn"; "The Hilltop"; "Afternoon Lights on the Hills"; "Neglected Land." He received numerous prizes, including the Webb prize of the Society of American Artists in 1887, and the Inness medal in 1910.

MURPHY, STARR JOCELYN. Lawyer, died, April 4. He was born at Avon, Conn., June 17, 1860; graduated at Amherst College in 1881, and at the Columbia Law School in 1883. After 1904 he was personal counsel and representative of John D. Rockefeller in his philanthropic work, and was an officer in the various Rockefeller benevolent institutions.

MURRAY, THOMAS. See NECROLOGY.

MUSCLE SHOALS. One of the great industrial projects of the war was the proposed nitrate and water-power development which was planned to be built at Muscle Shoals on the Tennessee river, Alabama. Here the great Wilson Dam was started and power and electrochemical works laid out on a stupendous scale and at vast cost. The termination of the war of course removed the military necessity for such a development and as it involved considerable outlay its necessity in times of peace was seriously questioned. As a result of action in Congress on the Appropriation Bills of 1921 further funds were denied and in April construction work was shut down. Then the question arose as how best to utilize what had been done already and what would be the best policy for the future.

It will be recalled that the plan adopted and on which work was begun provided for the construction on the Tennessee river of two locks, a dam, and a power house, 2.7 miles above the railroad bridge at Florence, Ala. This dam would secure a least depth of $9\frac{1}{2}$ feet at extreme low water for a distance of 14.7 miles, and for the generation of electric power for the production of nitrates or other products needed for munitions of war, and in the manufacture of fertilizers and other useful products. The length of the entire section provided for in the improvement was 36.6 miles, its lower end being 265.5 miles above the mouth of the Tennessee river.

On the basis of the appropriation made during the war and immediately thereafter work was pushed vigorously until Congress in the spring of 1921 decided to make no further appropriation for its prosecution. In 1921 the Chief of Engineers of the U. S. Army, who had the construction in charge reported that all preparatory work in the nature of camps, roads, railroads, plants, shops, etc., had been completed. Earth excavation for the lock was 90 per cent completed and rock excavation 18 per cent. About 66 per cent of the excavation and foundations for the dam were completed and about 35 per cent, of the concrete placed. About 48 per cent of the excavation for the power house section was completed and approximately 4.6 per cent of the concrete placed. Then came the suspension of construction so that the government property had to be collected and stored, rented floating

property returned and construction equipment placed in condition for indefinite storage or lay-up. This interruption of construction also led to the navigation of the river being completely blocked.

The Chief of Engineers also announced that a net total of \$15,278,828 had been expended on the project, which, in 1921 was about one-third completed, the percentages of completion for the various units being: Wilson Dam, 45 per cent; power house, 11 per cent, and locks 10 per cent. The sum expended in the fiscal year ended June 30, 1921, was \$7,840,781, the principal items listed being:

Dam construction, \$3,108,800; power house construction, \$1,017,000; main line railroads, construction, maintenance, and operation, \$495,500; general plant, purchase construction, operation, and maintenance, \$1,391,200; camp construction, maintenance, and operation, \$728,500; general expenses, including flood losses, labor recruiting, and office expenses, \$731,300, and lock construction, \$143,800.

On July 1, 1921, the balance available out of funds appropriated was \$398,921 which would be exhausted by August, 1922, as the expenses of guarding and maintaining the property average \$30,000 a month.

In case the government decided to go on with the work the natural sequence proposed by the army engineers was construction of cofferdam No. 2 and work therein; continuation of excavation for lock; continuation of concrete work in dam and continuation of excavation and concrete construction for power house. The amounts expended for each would depend upon the date and amount of the appropriation. The rate of expenditure would be approximately \$625,000 per month.

However, the government looked rather for some means of making the project remunerative as soon as possible and sought some interest that would either take on the work or agree to operate it when finished. Of course it was a proposition of vast magnitude and with existing financial conditions there were few interests willing or able to undertake its promotion. However, in July Henry Ford, the Detroit automobile manufacturer, offered to purchase the Muscle Shoals plant which included the completed nitrate-producing units, the partially completed dam across the river and a partially developed water power in the condition just referred to. Mr. Ford's offer was essentially as follows:

(1) He will take a 100-year lease upon the Wilson Dam and No. 3 Dam and electric installation when completed. For this he proposes to pay interest at the rate of 6 per cent on the sum of \$28,000,000, which is the estimate for the total cost, and to amortize not only this sum but the entire cost of both dams over a period of 100 years. (2) He offers to purchase all the nitrate plant and equipment, lands, steam plant, etc., for \$5,000,000. (3) He offers to convert and operate the large nitrate plant for the production of fertilizer compounds and as a standby for government explosives in case of war. (4) He agrees to limit the profits of the fertilizer plant to 8 per cent, an independent board embodying representatives of the American Farm Bureau and the National Grange and the Farmers' Union to certify to this maximum.

In announcing this offer Secretary Hoover said: "The acceptance of the offer is entirely for decision by Congress, and that body no doubt will be greatly guided by Secretary Weeks' views in the matter. Mr. Ford has made a genuine proposal. It shows courage to agree to pay out \$5,000,000; to spend further sums upon large works, and besides to take an annual obligation for about \$1,500,000 for 100 years, and to agree to maintain a nitrate plant in reserve for the government for that period. Whatever may be the result, Mr. Ford's offer does prove what the public associations have contended—that the completion of this project has a commercial value."

Mr. Ford and his engineers made personal and extended examination of the site and the development, and his offer and the various collateral questions were thoroughly discussed. Mr. Ford announced various schemes for a vast industrial and civic development, while water power, fertilizer, farming, and other interests were all interested in the proposition as presented. Other persons discussed in a tentative way the matter of taking on the property, but not on so large and responsible a scale as Mr. Ford. At the end of the year there was no definite conclusion or settlement reached in the matter but there had been conferences between the Secretary of War and Mr. Ford and his representatives.

MUSEUMS. See PAINTING AND SCULPTURE.

MUSIC. GENERAL NEWS. The National Association of Harpists (founded in August, 1919) held their first annual convention at the Hotel Pennsylvania in New York, on March 30. The most striking feature of this gathering was the opening concert at Carnegie Hall, rendered by a novel orchestra of ninety harps under the direction of Maud Morgan.—In April the Society of Friends of Music was established in Baltimore for the purpose of extending the scope of the Symphony Orchestra. The number of concerts, both at home and on tour, is to be more than doubled. Besides, a choral society is to be organized, which is to coöperate with the orchestra in the production of larger works (Mahler's symphonies, etc.).—In June the Canadian Parliament passed a new copyright-law, prohibiting the reproduction, performance, or publication of any copyrighted literary or musical works (the latter to include phonograph records and music-rolls), except upon payment of stipulated royalties. The term of copyright is for the life of the author and for fifty years after his death; in the case of records or rolls, for fifty years after the making of the original plate. It is estimated that the authors, composers, and publishers of the United States will be benefited by this law to the extent of \$175,000 annually.—Under the leadership of Edgar Varese the International Composers' Guild was organized in New York (July) for the purpose of introducing new works of members. Four concerts are to be given annually. The prospectus makes it clear that only works of extreme futuristic tendencies are to be included, since "the standard symphony orchestras present only the most timid and anemic of contemporary productions, leaving absolutely unheard the composers who represent the true spirit of our time."—Through the will of Dr. Victor Bayer, organist of Trinity Church, New York, Columbia University received \$20,000 to endow a fellowship for research in ecclesiastical

music.—During the summer the Pasadena Music and Art Association was founded and a "Composers' Fellowship" established. The recipient, who must be a composer of merit, receives \$2000 a year, on condition that he devote one-half of his time to composition. Arthur Farwell was named as the first holder of the fellowship.—In order to attract American students, the French Ministry of Fine Arts established at Fontainebleau a conservatory, where during the summer months American students may come into closer contact with eminent French musicians. The entire cost for board and tuition was fixed at \$100 a month. François Casadesus was appointed first director.—The American Academy in Rome, established by the Juillard Foundation (see YEAR BOOK for 1919), announced the endowment of a fellowship in composition which entitles the winner to a three years' residence in Rome (with privilege of travel) and an annual allowance of \$2000. Every year a composition of a certain prescribed form is to be submitted to the committee. The competition is restricted to native Americans who are unmarried. The judges of the first competition were Walter Damrosch, Albert Spalding, Richard Aldrich, John A. Carpenter, William J. Henderson, and Owen Wister. Out of fourteen scores submitted the prize was awarded to one by Howard H. Hanson of the College of the Pacific Conservatory of Music of San José, Calif. A special fellowship for two years was awarded to Leo Sowerby of Chicago.—On November 30 there was formed in New York the Caruso American Memorial Foundation, with Paul D. Cravath as president. Its object is to raise \$1,000,000, the income of which is to be divided equally between scholarships for talented students and the promotion of popular interest in music.—After having been vacant for four years since the resignation of O. G. Sonneck, the important position of Chief of the Music Division of the Library of Congress was filled by the appointment of Carl Engel of Boston.

COMMUNITY MUSIC. The keen interest shown in the observance of the first Music Week held in New York (see YEAR BOOK for 1920) led to a repetition of the event on a vastly more elaborate scale during the past year (April 17-24); 500 churches observed the opening Sunday with special musical services, 2000 local organizations took part, and about 200,000 musical performances, ranging from pupils' recitals to symphony concerts and representations of Grand Opera by the Metropolitan Opera Company, were crowded into that single week. Following the example set by the metropolis, other cities, as far away as San Francisco, Berkeley, and Seattle, had their Music Week. In Syracuse the local Opera Association gave a highly creditable performance of *The Mikado* (in March), without any assistance of outsiders even in the principal parts. The Philadelphia Operatic Society, which is recruited entirely from the ranks of amateurs (excepting a part of the orchestra), scored a pronounced success with its most ambitious undertaking, a complete performance of *Tannhäuser*, under the direction of Vassili Leps, at the Academy of Music, in November. The second summer-season of municipal opera in St. Louis yielded a profit of \$21,000, as against \$3000 of the preceding year.

ARTISTS. INSTRUMENTALISTS. Among the host of distinguished foreign visitors Richard Strauss attracted the most widespread attention and

general interest. As a composer he has been for two decades the dominating figure in the world of music, while as a conductor he ranks second to none. His great tone-poems, an indispensable part of the repertory of all our symphony orchestras, have long been familiar to American audiences. Even his latest work, a symphonic suite from *Der Bürger als Edelmann*, had its American première, months before the arrival of the composer, by the Boston Symphony Orchestra (Feb. 12). If as creative artist Strauss disclosed no new phase of his art, his consummate mastery in handling large orchestral forces was revealed fully only during this last visit. On the occasion of his former, and first, visit (Feb.-April, 1904) he had at his disposal a heterogeneous mass of players, whereas on this tour he was provided with the finest permanent orchestras of the country. From his first concert with the Philadelphia Orchestra (New York, October 31) to the last with the New York Philharmonic Orchestra (New York, Jan. 1, 1922) his appearances were an uninterrupted succession of triumphs. Within that period he conducted the Philadelphia Orchestra four times in New York and three times in Philadelphia, the New York Philharmonic Orchestra three times in New York, the Chicago and the Detroit Orchestra once, each in its home city. With the single exception of Theodore Thomas, Strauss is the least demonstrative and spectacular of the great orchestral leaders heard in this country, but it is the magnetism of a powerful personality that impresses both performers and listeners. His interpretation is distinguished not only for passionate sweep, superb climaxes, and a wealth of subtle nuances, but also for the clear outline of the architectonic structure and unusual clarity, without undue preponderance, of the inner voices. Aside from his appearances as conductor, he was heard as pianist in his own songs and chamber-music in New York, Philadelphia, Chicago, Detroit, Pittsburg, Boston, Washington, Baltimore, Hartford, St. Louis, Kansas City, Indianapolis, Milwaukee, Cincinnati, Cleveland, Madison, Wheeling, and Reading. Considering the enormous demands upon his time by his activities as composer and conductor, it is not at all surprising that his pianistic performances gave unmistakable evidence of lack of systematic practice. As assisting artists in these recitals he had Elizabeth Schumann (18 times), Claire Dux (3), Elena Gerhardt and George Meader (each 1), the violinists Bronislaw Hubermann (5), Mishel Piastro (4), Emil Heermann and Paul Kochansky (each 1), the violincellists Willem Willeke and Michael Penha (each 1) and the pianist Elly Ney (1). Altogether Strauss appeared in 42 concerts within two months.—One of the foremost Finnish composers, Selim Palmgren, whose works have figured prominently in recent years on the programmes of the great pianists in this country, introduced himself as interpreter of his own works (début, New York, October 4). The keen interest manifested was due to his merit as composer, rather than as pianist, in which latter capacity he did not excel. At his American début, with the Philadelphia Orchestra (Philadelphia, Oct. 28), Alfredo Casella, one of the leaders of futurism in Italy, presented himself in the triple capacity of composer, conductor, and pianist. Before his advent some of his compositions had been heard, and politely declined, by the audiences of several

of our great orchestras. The composer's presence failed to produce any change of attitude on the part of his listeners. But when he played Mozart's Concerto in D minor, he revealed pianistic and interpretative gifts of the highest order. He met with the same reception at subsequent concerts in New York and other cities. How so excellent an exponent of the works of classical and romantic composers, an artist possessed of such refined sensibilities, can identify himself with a movement like futurism will probably remain an unfathomable mystery for the average music-lover.—Christian Sinding, the eminent Norwegian composer, made no public appearances on his first visit to America, but devoted himself to his duties as special professor of composition at the Eastman School of Music in Rochester. The Ithaca Conservatory was responsible for the first American visit of the great Bohemian master of the violin, Otakar Sevcik, who spent the year in charge of the master-class at that institution.—An important début was that of Marcel Dupré, the famous organist of Notre-Dame, Paris, who at the same time inaugurated the magnificent new organ installed in the Wanamaker Auditorium (New York, Nov. 18). The finished execution of the first part of the programme, devoted to Bach, Franck, and Widor, gave ample evidence of the fact that he has no superior among living organists, while his masterly improvisation of a symphony in four movements in classical style, on themes handed to him by six eminent organists, recalled the stupendous feats of improvisation by the late Alexandre Guilmant.—Of the host of new pianists only a few of surpassing excellence can be mentioned. Ignaz Friedman, of whom European and South American critics had written only in superlatives, proved in his very first recital (New York, Jan. 7) that such praise was not exaggerated. A wonderful tone, endless variety of nuances and dynamic gradation, enormous speed, dazzling brilliance and almost superhuman endurance, combined with a fascinating personality, roused his audiences to demonstrations of unusual enthusiasm. A similar impression was produced by the appearances of the German pianist Elly Ney (début, New York, Oct. 15), whose masculine vigor and penetration entitle her to rank with the giants of the keyboard, irrespective of sex. In the same class is the Austrian, Artur Schnabel, whose début (New York, Dec. 25) justified his European reputation. Juan Reyes, a native of Chile, made his début (New York, Jan. 27) under unfavorable conditions, having barely recovered from a severe illness. Later appearances proved him an artist of unusual excellence. Among the innumerable aspirants to fame a young Cuban girl of eighteen, Margot de Blanck (début, New York, Nov. 4), attracted more than ordinary attention by a tone of ravishing beauty. But also in other respects her art can be measured only by the highest standards.—After periods of more or less protracted absence several established favorites revisited the scenes of their former triumphs. Antoinette Szumowska reappeared in Boston (Jan. 13), and showed that her art has not deteriorated, although she devoted herself during the period of the war to various activities in behalf of her native Poland. In the same city, after an absence of twenty years, the eminent Hungarian Ernst Dohnányi began another most successful tour of the United States (Feb. 17). Wilhelm

Bachaus, well remembered for his prodigious technic and fiery temperament, began his third tour in Chicago (Oct. 28). Ernest Schelling reappeared after four years (New York, Nov. 29), a finer artist than ever. A notable achievement by Olga Samarov was her masterly playing of all Beethoven's sonatas for piano in eight recitals (in New York). Other prominent artists who contributed to the year's pianistic offerings were Josef Hofmann, Harold Bauer, Josef Lhevinne, Mischa Levitzki, Sergei Rachmaninov, Arthur Shattuck, Alfred Cortot, Rudolf Ganz, Ernest Hutcheson, Robert Schmits, John Powell, Benno Moiseivitch, Cyril Scott, Ossip Gabrilowitsch, Leo Ornstein, Percy Grainger, Fannie Bloomfield Zeisler, Yolanda Merö, Guiomar Novaes, Margaret Volavay, Winifred Byrd, Germaine Schnitzer, Augusta Cottlow.—Slowly, but surely, the recital for two pianos has come to attract wider attention. The pioneers in this field, the sisters Rose and Ottilie Sutro, gave their usual series, as well as the two Boston artists, Guy Maier and Lee Pattison. Besides these, two artists of the first rank, Josef Lhevinne and his wife, Rosina, appeared with emphatic success in joint recitals.—A unique recital, unparalleled in the history of piano playing, was given in New York (Dec. 21) when fourteen pianists (Schelling, Stojowsky, Lambert, Grainger, Friedmann, Bauer, Ornstein, Gabrilowitsch, Lhevinne, Casella, Hutcheson, Bachaus, Ney, Schnitzer) appeared in one concert, each at his own instrument. In the final numbers, Schumann's *Davidsbündlerltanze* (last movement) and Schubert's *Marche Militaire*, all directed by Walter Damrosch, united in a sonorous and spirited rendition. This unusual concert had been arranged as a benefit for Moriz Moszkowski, sick and in want in Paris. The proceeds forwarded to the composer amounted to \$15,000.

Of new violinists the Russian, Alexander Schmuller (New York, January 13; Tchaikovsky concerto), proved the sensation of the year. A man of striking personal appearance, strongly resembling the pictures of Paganini, his playing also exerted upon his audience some such demonic influence as was universally attributed to the great Italian. His tone is large and sensuously beautiful, his technic prodigious, his intonation infallible, his interpretation penetrating and grandiose. When the last note died away, a riotous demonstration broke loose. His countryman, Izzy Mitnitsky (New York, Jan. 17), showed that he need not fear comparison with the younger Russian violinists that have won favor in the last few years. Erika Morini, a sixteen-year old girl of Austro-Italian descent, made a distinctly favorable impression at her début (New York, Jan. 26). She has a large, sympathetic tone, a brilliant and reliable technic and a remarkable feeling for style, even if her interpretation is not quite mature. But on her reappearance, in November, it was evident that she had made considerable strides forward in this latter respect. Paul Kochansky (New York, Feb. 14; Brahms concerto) disclosed an art profoundly moving and exquisitely refined. The impression made by Carlo Sabatini (New York, Feb. 22) was that of a serious, capable artist. Like most Hungarians, Emil Telmányi (New York, Oct. 20), is preëminently a temperamental player. His tone is warm and beautiful, although the intonation is not impeccable. After an absence of twenty-seven years the erstwhile child prodigy,

Bronislaw Hubermann, returned as a mature artist (New York, Oct. 17), a formidable technician and fine interpreter. Another wonder-child, Ferenc Vecsey, returned after a period of sixteen years (New York, Nov. 1), with his original fiery, almost volcanic, temperament very much subdued, so much so, that the man's dignified repose appeared a little studied. Other eminent violinists of the year were Frits Kreisler, Juan Manén, Efrem Zimbalist, Albert Spalding, Jacques Thibaut, Duci Kerekjarto, Vasa Prihoda, Alexander Seibald, Mishel Piasiro, Gustave Tinlot, Kathleen Parlow, Isolde Menges, Helen Teschner-Tas, Daisy Kennedy, Thelma Given.—The first of the new violoncellists was a young Italian, Arturo Bonucci (New York, March 24). What he lacked in breadth of style and depth of emotion, he made up in delicacy and grace. A mere boy, Maurice Brown (New York, March 25), impressed his hearers by his wonderful technical fluency and marvelous tone. A young Hungarian, who enjoys the distinction of being Popper's last pupil, Rossi Varady (New York, Oct. 15), exhibited a truly remarkable artistry, the result of a combination of many excellent qualities in equal proportion, tending to throw into high relief the performance as a whole. The famous Russian, Josef Press (New York, Dec. 1), fairly carried away his listeners by his poetic and intensely emotional playing, his large, warm tone and an extraordinary command of dynamics. Lovers of the violoncello had the opportunity of admiring also the art of Leo Schulz, Boris Hambourg, Gutia Casini, Hans Kronold, Cornelius Van Vliet, Hans Kinder, Georges Miquelle, May Mukle.

VOCALISTS. The first recital of the famous and much-heralded Russian baritone of the Vienna Opera, Josef Schwarz (New York, January 3), gave proof of the fact that the high praise accorded him by European critics was justified. With the natural gift of a rich, vibrant, and sympathetic voice the artist combines great personal magnetism and a dramatic temperament that makes each song stand forth as a miniature drama. The début of another star of the Vienna Opera, Selma Kurz (New York, January 9), introduced one of the world's greatest coloratura sopranos, whose success was instantaneous and emphatic. Less dazzling than the two preceding was the Spanish soprano, Francesca Catalina (New York, January 1), a fine artist with a voice of unusual range, perfectly equalized in the different registers. Frieda Klink, a splendid mezzo-contralto (New York, January 11), established herself as one of the elect in the field of the Lied. The same may be said of the young mezzo-soprano Louise Stallings (New York, April 5), who exhibited rare natural gifts enhanced by perfect artistry. Another mezzo-soprano, Henrietta Safonov (New York, April 11), a niece of the great conductor, proved herself a versatile artist, worthy of the distinguished name she bears. One of the finest new baritones heard in a long time was Richard Hale (New York, April 12), a singer endowed with an unusually powerful and beautiful voice. Success little short of sensational attended the début of the Russian bass Alexander Akimov (New York, October 20), who thrilled his audience with the quality of his sonorous organ, as well as with his vivid delineation of mood. Three days after the début of her husband, Selim Palmgren, the celebrated Finnish soprano, Maikki Järnefelt, introduced herself

with a varied programme well calculated to show to advantage her striking dramatic power (New York, October 7). Fourteen years after his first visit the eminent Russian basso profundo, Feodor Shaliapin (Chaliapine) entered upon a succession of veritable triumphs, beginning with his first recital (New York, November 13). Other notable reappearances, after a greater or less number of years, were those of Alma Gluck (New York, March 6), Emma Calvé (Boston, December 25), Julia Culp (Boston, April 3), Edmond Clément (Boston, October 22), Elena Gerhardt (New York, October 23). In the case of Mmes. Gluck and Calvé the voice showed traces of the passage of time, although their artistry has remained unimpaired. The other artists were still in full possession of their splendid powers. Among the more prominent singers of the year were Ernestine Schumann-Heink, Margarete Matzenauer, Frieda Hempel, Yvonne de Tréville, Luisa Tetrazzini, Louise Homer, Carolina Lazzari, Mabel Garrison, Birgit Engell, Rosa Raisa, Nina Tarasova, Alessandro Bonci, Tito Schipa, Charles Hackett, Reinald Werrenrath, Gervase Elwes, Louis Graveure, Lambert Murphy, Rafael Diaz, Edward Johnson, Royal Dadmun.

ORCHESTRAS. Sixteen years after his first brief American visit, when he conducted two concerts of the New York Philharmonic Society (Nov. 10 and 11, 1905), Willem Mengelberg made his appearance on January 11 as conductor for the second half of the season of the National Symphony Orchestra of New York, Artur Bodansky having led the first half. Mengelberg's success was instantaneous and overwhelming. At his final concert (March 25) the demonstrations of the audience reached the pitch of frenzied enthusiasm. The wonderful results he obtained were due not only to his personal magnetism and authority, but also largely to the numerous rehearsals on which he insisted. This constant rehearsing brought the orchestra to the highest point of technical excellence, but it also added considerably to the season's deficit, so much so, that the guarantors decided to withdraw their support. Mengelberg's immense popularity and drawing-power had been watched by the directors of the Philharmonic Society, who came to an agreement with the directors of the National Symphony Orchestra. Accordingly, some of the directors of the disbanded orchestra joined the Philharmonic board; Stransky and Mengelberg were to conduct, respectively, the first and second half of the season; Bodansky was engaged for a number of concerts as guest-conductor; Hadley remained as assistant conductor. The Philharmonic orchestra was thoroughly reorganized and increased to 120 performers by the addition of the complete woodwind section from the National, from whose ranks were also selected a considerable number of players of stringed instruments to replace older or less efficient men. Instead of the old Philharmonic schedule of one two-hour rehearsal for each symphony concert, a new schedule requiring three three-hour rehearsals was adopted. The quality of the playing after the beginning of the new season in the fall left no doubt as to the beneficial results of intensive rehearsing. The success that attended two performances of the New York Symphony Orchestra conducted by Albert Coates led to his engagement as alternate conductor with Walter Damrosch. The Society offered two prizes

of \$1000 and \$500, respectively, for the two best orchestral scores by American composers. The judges (Damrosch, Stokowski, Chadwick, Carpenter, Kneisel) awarded the first prize to Louis T. Gruenberg, of New York, for his symphonic poem, *The Hill of Dreams*, the second to Carl McKinley, of Hartford, for *The Blue Flower* (for performance of these works see NOVELTIES). After the most serious crisis in its history (see YEAR BOOK for 1920) the Boston Symphony Orchestra, under Pierre Monteux, gradually recovered its equilibrium, when the ranks of the deserters had been filled. But the preceding period of storm and stress resulted in a deficit of \$131,000, which sum exceeded the pledges by about \$50,000. Under the circumstances the trustees found themselves obliged to appeal to the music-lovers at large, who were not found wanting. This manifestation of general interest led to the adoption of a new policy in the matter of guarantees. Instead of relying upon the generosity of a few wealthy patrons to cover the inevitable annual deficit, the trustees secured a larger number of guarantors. The Philadelphia Symphony Orchestra was increased from 96 to 104 players, and its New York series of eight concerts to ten. Under its regular conductor, Leopold Stokowski, it gave the first complete performance heard in Philadelphia in twenty years of Beethoven's Ninth Symphony, for which a chorus of 240 voices had been specially trained by Charles Heinroth. After ten years the Chicago Symphony Orchestra, under Frederick Stock, revisited Boston (January 24) and New York (January 25), and demonstrated once more that it need not fear comparison with the great orchestras of the East. After the death of its regular conductor, Max Zach (February 3), the remaining concerts of the St. Louis Symphony Orchestra were directed by various guest-conductors, Rudolf Ganz, Theodore Spiering, Dirk Foch, Frederick Fischer. Of these Ganz made the deepest impression, and was elected Zach's successor. Besides giving its regular series of concerts, the Detroit Symphony Orchestra (Ossip Gabrilovitch) furnished the incidental music in a cycle of dramatic masterpieces of Shakespeare and Maeterlinck. The Erie Symphony Orchestra, which, on account of the war and the death of its conductor and founder, Franz Kohler, was disbanded in 1917, was reorganized, and gave its initial concert, under the direction of Henry B. Vincent, on January 30. After several months of rehearsing the new Buffalo Symphony Orchestra, under Arnold Cornelissen, made its first public appearance on December 11. Sixty employees of the Wurlitzer Company, manufacturers of musical instruments of Chicago, organized the Wurlitzer Symphony Orchestra and gave their opening concert, under V. J. Grabel, on April 10. At the Metropolitan Museum of Art of New York a series of free symphony concerts, under the direction of David Mannes, attracted an average audience of 6000 persons. All expenses were borne by John D. Rockefeller. In order to give young musicians an opportunity to develop into skilled orchestral players, Mrs. E. H. Harriman established the American Orchestral Society of New York. A number of neighborhood orchestras, under experienced conductors, were organized. The more advanced players were formed into a central body, under Dirk Foch, and gave free concerts in various sections of the city. Within

the first two months 500 performers had enrolled in the different groups. The attendance during the fourth season of the popular open-air concerts at the Stadium of the College of the City of New York (July-September), under Henry Hadley and Victor Herbert, exceeded that of any previous season. The same fact can be recorded of the fifth season of Edwin Goldman's free band concerts on the Green of Columbia University. The enormous success of Toscanini and his La Scala Orchestra of the preceding year induced the management to arrange several additional concerts, thus extending the tour well into the past year. In the earlier part of the year differences, arising out of a reduction of salaries, between the theatrical managers and musical union in New York culminated in a general strike. In order to raise funds, the musicians formed a monster orchestra of 258 performers, under Arnold Volpe, and gave six financially highly successful concerts (in August).

FESTIVALS. Instead of giving its customary concerts through the season, the New York Oratorio Society (Walter Damrosch) repeated the successful experiment of the preceding year of concentrating its energies on a series of festival concerts on a large scale (March 29-April 2). For the performance of Pierné's *La Croisade des Enfants* the chorus was augmented by the addition of 600 children's voices, while a Bach-Wagner programme was given with the coöperation of the famous Bethlehem Bach Choir, which under its conductor, Frederick J. Wolle, gave flawless renditions of several Bach cantatas. The other works produced were Bach's *Passion According to St. Matthew*, Elgar's *Dream of Gerontius*, Verdi's *Requiem* and two dramatic performances, by Margaret Anglin's company, of Euripides' *Iphigenia in Aulis*, with incidental music by Damrosch. The closing concert of the 28th annual Ann Arbor Festival (May 19-21) marked the farewell appearance as conductor of Dr. Albert A. Stanley, who had directed every festival since the beginning in 1893. The principal works presented were Mendelssohn's *Elijah* and a concert-performance of *Aida*. The 13th annual North Shore Festival (May 21-24) was held at the Northwestern University, with the assistance of the New York Philharmonic Orchestra (Josef Stransky) and the Chicago Symphony Orchestra (Frederick Stock). A cantata for soli, chorus, and orchestra, written especially for the occasion by Stock, made a deep impression under the masterly direction of the composer. An inspiring performance of Bach's *St. Matthew Passion* was given by a chorus of 1000 voices, led by Peter Lutkin. Announcement was made of a \$1100 prize for the best orchestral score submitted by an American composer, the successful work to have its first performance at the next festival and to be also included in one of the regular programmes of the Chicago Symphony Orchestra. The offerings of the first day of the 16th Bethlehem Bach Festival (May 17, 28), held at Lehigh University under Frederick J. Wolle, included the cantata, *The Sages of Sheba*, the *Christmas Oratorio* and instrumental works, while the second day, according to established custom, was devoted to the *Mass in B minor*. The chief event of the 12th biennial festival of the National Federation of Music Clubs at the Tri-Cities (Davenport, Rock Island, and Moline, Iowa, June 6-8) was a splendid perfor-

mance, under A. Cyril Graham, of Paolo Gallico's *The Apocalypse* (June 7), the oratorio that won the \$5000 prize. It proved a work of considerable dramatic power, and won respect for its solid musicianship. For the first time since the outbreak of the war the German singing societies of Connecticut held a *Sängerfest* at Bridgeport (in June), where the Hartford *Sängerbund* carried off the first prize. All the compositions were sung in English. Under the general supervision of Prof. George P. Baker, of Harvard University, a gorgeous pageant, *The Pilgrim Spirit*, was staged at Plymouth, Mass. (July 20), in commemoration of the tercentenary of the landing of the Pilgrim Fathers. It was repeated eight times in August. The cast comprised not less than 1000 persons, and the musical portions were directed by Chalmers Clifton. The music, all written specially for the occasion, was contributed by George Chadwick, Chalmers Clifton, Henry F. Gilbert, Frederick S. Converse, Arthur Foote, Edwin B. Hill, Edgar S. Kelley, John Powell, and Leo Sowerby. The fourth annual Berkshire Festival of chamber-music was held at Pittsfield, Mass. (September 29, 30, October 1), with the participation of the Lets Quartet, Barrère Ensemble, Elshuco Trio, and Detroit Symphony String Quartet. As soloists in the production of their own works appeared Percy Grainger, Selim Palmgren, Leo Sowerby, and Henry Eichheim. The \$1000 prize for the best piano-trio was awarded to H. Waldo Warner, a member of the London String Quartet. Honorable mention was made of the scores of Renzo Bossi and Rebecca Clarke, the latter having won the same distinction in the competition of 1919. The prize work, heard in a flawless rendition by the Elshuco Trio, made no very deep impression, as the music lacked originality. There were, in fact, many echoes from Strauss, Puccini, and Debussy, with touches of English modernism. The works that afforded greatest pleasure were those of the masters, Mozart, Beethoven, Schubert, Brahms. The widespread interest in this important festival may be judged by the fact that for this year's competition 64 manuscripts, by composers of ten nationalities, were submitted. About 20 scores were by American composers. A festival arranged at Berkeley, Calif. (September 15-17), consisted of four concerts with unique programmes: I. Works of Charles W. Cadman, conducted by the composer. II. Works of resident Berkeley composers. III. Development of Public School Music. IV. Works of Bohemian Grove composers. The 63d annual Worcester Festival (October 5-7) had the assistance of the New York Symphony Orchestra, under its assistant conductor, René Pollain. The second concert was devoted exclusively to works never heard at these festivals. The new festival conductor, Nelson P. Coffin, made an excellent impression with his skillful and authoritative handling of large choral masses. The 25th Maine Festival (Bangor, October 6-8; Portland, October 10-12) marked the silver jubilee of its foundation, as well as that of its conductor, William R. Chapman.

NOVELTIES. The following list records the American premières of the more important works introduced during the year. The Chicago Symphony Orchestra (Frederick Stock): Gustav Holst, *The Planets*, symphonic poem (January 1). Each of the seven movements bears the name of one of the planets of the solar system, but the ex-

tremely modernistic music expresses nothing in particular. Arnold Bax, *The Garden of Fand* (New York, January 25), a symphonic poem of excessive length, in which a brilliant orchestration fails to conceal the poverty of musical ideas. Emanuel Moor, *Concerto for String-Quartet and Orchestra* (March 25), a work of splendid craftsmanship, but deficient in genuine inspiration. Gustav Mahler, *Symphony No. 7*, in E minor (April 15), ambitious work of enormous dimensions, complicated, diffuse, and tiring. Sergei Prokofiev, *Symphony in D* (December 16; conducted by composer), built up skillfully on well-defined, effective themes. Sergei Prokofiev, *Concerto for Piano and Orchestra* (December 16; played by composer), bristling with technical difficulties, but lacking in continuity and logical coherence. A daring experiment was undertaken by Mr. Stock, when he made an entirely new orchestration of Schumann's *Third Symphony (Rhenish)*, performed in the concerts of December 9 and 10. This brilliant new garb exploited no extraneous effects, altered no essentials of the original conception, but threw into high relief the surpassing beauties of the thematic material.—New York Symphony Society (Walter Damrosch): Claude Debussy, *Fantaisie*, for piano and orchestra (February 17; played by Cortot), one of the composer's earliest works, interesting, if not very striking. Jean Roger-Ducasse, *Marche Française* (October 20), really a symphonic poem inspired by the war, shallow, bombastic, and unbearably noisy. Louis T. Gruenberg, *The Hill of Dreams* (October 23; won the \$1000 prize, see ORCHESTRAS), a very effective mood picture with good thematic material, well developed, somewhat reminiscent of Wagner, with occasional light touches of modernism. Vincent d'Indy, *Sur les Rivages*, symphonic poem (December 1; conducted by the composer), a work of reflection rather than of inspiration, very free in form. Le Flem, *Aux Morts* (December 1), an uninspired production of a pupil of d'Indy and a faithful copy of the style of his master.—New York Philharmonic Orchestra (Josef Stransky): Reginald Sweet, *Prelude to the opera, The Riders to the Sea* (March 4), a vivid and impressive mood picture, strongly tinged with Wagnerian influence. Henry Hadley, *The Ocean*, tone-poem (November 17; conducted by the composer), ingratiating, fluent music, effectively orchestrated, although themes are lacking in distinction.—National Symphony Orchestra (Artur Bodanzky): Frederick Jacobi, *The Eve of St. Agnes*, symphonic prelude (April 29), an excellent reproduction of the poet's mood, with pregnant themes, skillfully developed and brilliantly orchestrated.—Boston Symphony Orchestra (Pierre Monteux): Richard Strauss, *Symphonische Suite* from the opera, *Der Bürger als Edelmann* (February 12), a happy imitation of the music of the period of Louis XIV, charming in its simplicity and vivid characterization. Stuart Mason, *Rhapsody on a Persian Air*, for piano and orchestra (April 22; played by the composer), highly imaginative and saturated with real oriental color. Darius Milhaud, *Deuxième Suite pour Orchestre* (April 22), a typical product of futurism, chaotic and unintelligible. D. C. Smith, *A Poem of Youth* (November 11), not remarkable in any respect, but legitimate music avoiding all modern excesses.—Philadelphia Symphony Orchestra (Leopold Stokowski): Francesco Malipiero,

Dittirambo Tragico (April 29), horribly cacophonous, received with open displeasure. Walter Braunfels, *Fantastische Variationen über ein Thema von Berlioz* (October 14), learned and dull variations on an eccentric theme. Jean Sibelius, *Symphony No. 5*, op. 82 (October 21), gloomy and austere, but very impressive. Alfredo Casella, *Pagine di Guerra*, symphonic suite in five movements (October 28), an orgy of dissonance and noise. Alfredo Casella, *A Notte Alta*, for piano and orchestra (New York, November 1), a work of the same kind as the preceding. Gregor Fitelberg, *Polnische Rhapsodie* (November 4), a finely inspired work, effective in its well-arranged contrasts and stirring climaxes.—Minneapolis Symphony Orchestra (Emil Oberhoffer): Kurt Atterberg, *Symphony No. 2*, in F, op. 6 (March 18), promises well for the future development of the young composer.—San Francisco Symphony Orchestra (Alfred Herz): Maurice Ravel, *La Valse*, *poème chorégraphique* (October 28), based on Viennese waltz themes treated in modern style, but free from exaggeration. Hans H. Wetzel, *As You Like It*, overture (November 18), a work of distinction on strictly classical lines.—St. Louis Symphony Orchestra (Rudolf Ganz): Ernest R. Kroeger, *Festival Overture*, in commemoration of the centenary of Missouri's admission as a State (November 6), unpretentious, but spirited and effective.—Cincinnati Symphony Orchestra (Eugène Ysaÿe): Théophile Ysaÿe, *Piano Concerto in E* (November 13; played by Mme. Melville-Lissniewska), built on splendid thematic material, skillfully developed, very grateful for the soloist.

OPERA. At the Metropolitan Opera House in New York 168 performances were given from a repertory of 39 works by 25 composers. According to nationality these were divided as follows: Italian, 21 works by 11 composers totaled 101 performances; French, 7 works by 6 composers totaled 28 performances; German, 6 works by 3 composers totaled 22 performances; Russian, 3 works by 3 composers totaled 11 performances; Bohemia and America were represented each by one composer with one work, each being given three times. Verdi, represented by 7, and Puccini by 4 works, each had 25 performances; second came Wagner with 17 performances of 4 works. The opera heard most frequently was Charpentier's *Louise* (9 times); Boito's *Mefistofele* and Puccini's *Bohème* came next (8 times); then Wagner's *Lohengrin*, Bizet's *Carmen*, Leoncavallo's *Zaza*, Verdi's *Aida* and Puccini's *Madame Butterfly* (each 7 times). Weber's *Oberon* and Saint-Saëns' *Samson et Dalila* were given only once. The first novelty, *The Polish Jew* (March 9), by the Bohemian Karel Weis, with Delaunois, Chamlee, Caupolican, and Gustafson in the principal rôles, under the direction of Bodanzky, was presented in an English translation of S. Spaeth and C. Cowdery. The music seldom rises above the commonplace, and is singularly deficient in power of characterization. By far the best portions are the instrumental preludes and dances. After two repetitions the work was shelved. Of very different calibre was Erich Korngold's *Die tote Stadt* (November 19), sung in the original German by Jeritza and Harrold in the chief rôles, directed by Bodanzky. Considering that the composer was only 22 years of age when he wrote the score, it is not surprising to find the music eclectic rather than

individual. The predominating influence is that of Strauss, while there is also evidence that the composer has absorbed Wagner and Puccini. But even so, there is sufficient originality to indicate that before the lapse of many years Korngold will be a foremost figure among contemporary dramatic composers. The leading motive is used but sparingly, but invariably with telling effect; the themes themselves are of striking musical beauty and dramatic expressiveness. Truly astonishing are the fluency of the writing and the intimate knowledge and perfect command of the technical resources of the complicated orchestral apparatus employed. A well-nigh perfect representation roused the enthusiasm of the audiences, both at the première and later repetitions, to a high degree. Twenty-five years after its American première Umberto Giordano's *Andrea Chénier* made its first appearance in the repertory of the Metropolitan (March 7) and was received with favor. After the restoration during the preceding year of *Parisfal* and *Tristan und Isolde*, in English, *Lohengrin*, also in English, followed on February 2. However, with the opening of the new season in the fall, the English versions were abandoned in favor of the original language. *Die Walküre* was restored on December 16. A most serious loss the company suffered in the death of Enrico Caruso (August 2), who had been the principal tenor and chief drawing-card ever since his Metropolitan début (1903). A worthy tribute was paid to the memory of this rare artist on November 27, when his widow presented to the Metropolitan Opera House a fine bronze statue of her husband (the work of Onorio Ruotolo), while all the artists of the company united in the rendition of an elaborate and impressive musical programme. The proceeds, \$12,000, were donated to the Casa di Riposo dei musicisti in Milan, in which Caruso had always been deeply interested. One of the events of the year was the special engagement of the great Russian bass, Feodor Shaliapin (Chaliapine), for the title rôle of Mussorgsky's *Boris Godunov* (December 9), when his marvelous interpretation aroused tumultuous demonstrations. Of the new artists the Vienna soprano, Marie Jeritza, made a sensational success at her début as Marietta (*Die tote Stadt*, November 19), due primarily to her extraordinary histrionic talent. Other valuable additions were Cora Chase (Gilda in *Rigoletto*, February 4), an Indian chief, Caupolican (Mathis in *The Polish Jew*, March 9), Yvonne d'Arle and Aureliano Pertile (respectively as Musetta and Cavaradossi in *La Bohème*, December 1).

The Chicago Opera Company gave 113 performances (70 in Chicago, 43 in New York) from a repertory of 36 works by 21 composers. According to nationality they were divided as follows: Italian, 19 works by 10 composers totaled 63 performances; French, 12 works by 8 composers totaled 40 performances; German, 4 works by 2 composers totaled 9 performances; one work by a Russian composer had one performance. Verdi, represented by 4 works, and Puccini, represented by 3, had each 18 performances. Next came Massenet, 3 of whose works were given 10 performances. Wagner stood third, with 8 performances of 3 works. Only one novelty was produced, Prokofiev's *Love for Three Oranges* (December 29; sung in French). The text, after a fairy tale of Gozzi, was written by the composer,

who also conducted the performance, the world-première. The work is neither opera nor music-drama, but a burlesque of the crudest type, in which the fifteen characters indulge in a succession of circus-tricks and horse-play, accompanied by typical futuristic cacophonies from the orchestra. The restoration to the repertory of *Die Walküre* (January 10; in English), with Cyrena Van Gordon as a new Brünnhilde, was hailed with delight by an immense audience, while *Tannhäuser* (November 24) inaugurated the return of the Wagnerian dramas in the original. A revival of Strauss' *Salome* (December 28), with Garden, Muratov, and Dufranne, under Polacco, aroused another storm of protest in the public press, as had been the case on the occasion of the first two performances (Nov. 25, 28, 1910), after which the work was withdrawn. Instead of the crassly realistic and revolting delineation which she gave eleven years ago, Miss Garden presented a more restrained conception of the title-rôle. Artistically the New York season (January 24-March 5) was highly successful, financially it resulted in a deficit of \$275,000. Two operas entirely new to New York were Marinuzzi's *Jacquerie* (February 4) and Leoncavallo's *Edipo Rè* (February 21) (For discussion of these see YEAR BOOK, 1920.) Four new singers, with great reputations established elsewhere, aroused unusual enthusiasm: Rosina Storchio (Cio Cio San in Puccini's *Madama Butterfly*, January 1), Edith Mason (same rôle November 16), Josef Schwarzs (Rigoletto, November 21) and Claire Dux (Mimi in Puccini's *La Bohème*, November 22). Other valuable additions were Tino Pattieri (Mario in Puccini's *Tosca*, November 15), Richard Schubert (*Tannhäuser*, November 24), Mary McCormick (Micaela in Bizet's *Carmen*, November 26), Vicente Ballester (Figaro in Rossini's *Il Barbiere di Siviglia*, December 29). Two new conductors, Angelo Ferrari (*Tosca*, November 15) and Gabriel Groves (*Manon*, December 26) proved thoroughly competent leaders. The friction resulting from the experiment of a dual directorship of the preceding year led to the resignation of Gino Marinuzzi (January 6) and the appointment of Mary Garden as directress-general (January 13). The first year of her régime can scarcely be characterized as successful, in view of the fact that at the close of the year there was considerable dissatisfaction among a number of the principal artists, and the deficit had mounted to the enormous sum of \$800,000, the largest deficit in the annals of opera in the United States. This condition led to the dissolution of the Chicago Opera Association, which was succeeded by a new body, the Chicago Civic Opera Association, to whom Mr. and Mrs. Harold F. McCormick, the principal stockholders and supporters of the former company, deeded the entire stock of scenery, costumes, and properties, valued at \$3,000,000.

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MUSIC DIVISION OF THE LIBRARY OF CONGRESS. See MUSIC, *General News*.

MUSIC FESTIVALS. See MUSIC, *Festivals*.

MUSICAL COMPETITIONS AND PRIZES. See MUSIC, *General News*, *Orchestras*, *Festivals*.

MUSICAL PAGEANT. See MUSIC, *Festivals*.

MUTTON. See LIVE STOCK.

N

NATAL. An original province of the Union of South Africa. See **SOUTH AFRICA, UNION OF.**

NATHAN, ERNESTO. Formerly mayor of Rome, died at Rome, April 9. He was born in 1847, the son of an English Jew banker and of an Italian woman, and lived in England until his thirteenth year, when he went to Pisa and studied for a time at the university there. He was compelled to leave Italy on account of his pronounced republican opinions. He returned in 1870 and became an editor, lecturer, and university professor. In political philosophy he was a follower of Massini, whom he personally knew. After being elected four times to the city council he was chosen mayor of Rome in 1907 and again in 1910. He was an enthusiastic freemason and became chief of the Italian order. For these reasons he was particularly obnoxious to the Vatican and the conservative parties, and during his administration he was bitterly assailed for his modernization of the city, winning the nickname in certain quarters of "Nathan, the Vandal." To those who blamed him for his alterations of buildings, he retorted that Michael Angelo altered other people's buildings and asked why he should not do so, adding that Rome was not a museum, but a modern city. His controversies with the representatives of the Church and of Italian tradition were exceedingly violent.

NATIONAL BANKS. According to the Comptroller of the Currency the number of national banks reporting on June 30, 1921, was 8154 or 124 banks more than reported on the corresponding date in 1920. The aggregate resources of these banks, exclusive of paper rediscounted, were \$19,638,446,000 or \$67,747,000 more than at the date of the comptroller's previous call, April 28, 1921, but a reduction as compared with the returns on June 30, 1920, of \$2,558,291,000. While the assets of these banks were greater on June 30 than on the date of the preceding call, a gradual decline is noted at the date of each call, subsequent to June 30, 1920, with the exception of Nov. 15, 1920, when they amounted to \$22,081,913,000, the highest point during the year. This decline is reflected principally in loans and discounts and holdings of United States Government securities.

Loans and discounts, including customers' liabilities on account of letters of credit, but exclusive of overdrafts, acceptances, and rediscounts, on June 30, 1921, amounted to \$11,125,099,000, or 73.47 per cent of their total deposits, a reduction as compared with April 28 of \$241,975,000, and in the fiscal year of \$1,281,019,000.

On June 30, 1921, national banks had invested in United States Government securities \$2,019,497,000, representing 10.28 per cent of their total assets. This amount was \$17,686,000 greater than the aggregate holdings of these securities on April 28, but a reduction from the amount held June 30, 1920, of \$250,078,000.

Included in investments in United States securities, were \$722,898,000 of United States bonds deposited with the Treasurer of the United States as security for outstanding circulation. Other bonds, stocks, and securities held by national banks on June 30, 1921, amounted to \$2,005,584,000, an increase over the amount reported April 28 of \$14,614,000, and an increase over the amount reported on June 30, 1920, of \$88,694,000.

The total cash held in the vaults of these banks, June 30, 1921, was \$374,349,000, or \$27,874,000 less than the amount reported on the date of the preceding call, and a reduction as compared with the amount reported on June 30, 1920, of \$76,002,000, while the amount due these banks from other banks and bankers including lawful reserve with the Federal reserve banks and items in process of collection of \$1,368,207,000, aggregated \$2,384,724,000, an increase over the amount reported April 28 of \$22,453,000, and a reduction during the fiscal year of \$736,477,000.

The capital stock of these banks, paid in and certified to the Comptroller of the Currency on June 30, was \$1,273,880,000, an increase over April 28 of \$2,497,000, and over June 30, 1920, \$49,714,000. Surplus and undivided profits were \$1,522,411,000 or \$23,514,000 less than on April 28, but an increase over June 30, 1920, of \$62,784,000.

The liability of national banks for outstanding circulating notes, on June 30, amounted to \$704,147,000, and was greater than the amount reported at the date of any call during the year, being \$24,570,000 in excess of the amount of outstanding circulation April 28, and \$15,969,000 greater than the amount reported June 30, 1920.

The total deposits of national banks on June 30, 1921, were \$15,142,331,000, of which amount \$8,958,864,000, including United States deposits of \$249,039,000, were on demand, and \$3,695,806,000 were time deposits. The remainder represented balances due to banks and bankers. Total deposits increased \$290,472,000 between April 28 and June 30, 1921, but decreased between the latter date and the corresponding date in 1920, to the extent of \$2,013,090,000. Bills payable and rediscounts of national banks on June 30 totaled \$1,471,979,000 a reduction of \$239,523,000 since April 28, and a decline since June 30, 1920, of \$734,089,000. Of the bills payable, \$452,368,000 were with Federal reserve banks, and \$140,195,000 with other banks, while paper rediscounted with Federal reserve banks aggregated \$808,401,000, and with other banks, \$36,215,000. Acceptances of other banks, and foreign bills of exchange sold with indorsement, amounted to \$34,800,000. The reduction in the bills payable of national banks during the year was \$398,989,000, and in rediscounts the reduction was \$335,100,000.

Between the close of 1920 and of 1921, loans and discounts declined over 9 per cent to \$10,981,783,000. Refinancing of loans as indicated by borrowings in the form of bills payable and redis-

counts declined from \$2,342,000,000, or nearly one-fifth of loans and discounts, to \$1,008,000,000 or one-eleventh of loans. Total assets fell off nearly \$2,000,000,000 to \$19,420,000,000. Total deposits declined from \$16,277,000,000 to \$15,075,000,000, while demand deposits fell off about \$900,000,000 to \$8,606,000,000. Reserve balances declined \$41,000,000 to \$1,143,000,000 but cash holdings alone fell off \$153,000,000 to \$342,000,000. Acceptances outstanding continued their decline, falling from \$375,000,000 to \$219,000,000. The general position, however, showed a distinct improvement as compared with September 6, after which time deposits and reserves considerably increased, while borrowings declined.

If regard be had to banks outside reserve cities, the picture is not a little different. Loans and discounts there declined \$388,000,000 during the year, or about 7 per cent, to a total of \$5,043,000,000. Borrowings were reduced about \$143,000,000 to an aggregate of \$516,000,000, but were still over 10 per cent of loans and discounts. The decrease, however, was particularly marked during the last four months of the year. Total assets declined from \$9,720,000,000 to \$9,140,000,000, or \$580,000,000. Demand deposits declined \$508,000,000 to a total of \$3,727,000,000. Lawful reserve declined from \$421,000,000 to \$380,000,000, and actual cash holdings were reduced about one fourth to \$198,000,000. Altogether these figures support the view that the problem of "frozen loans" has been most pressing in the agricultural districts.

NATIONAL CIVIC FEDERATION. An educational society which defines its purposes as follows: To organize the best brains of the nation in an educational movement seeking the solution of some of the great problems related to social and industrial progress; to provide for study and discussion of questions of national import; to aid thus in the crystallization of the most enlightened public opinion; and, when desirable, to promote legislation in accordance therewith. It functions through an executive committee which has representatives "on the part of the public," on the part of the employers, and "on the part of the wage earners." During the year, the National Industrial Committee, composed of publicists, officials of the leading non-revolutionary labor organizations, and employers, made a special study of questions affecting the three great divisions of society, capital, labor, and the general public. It dealt with such subjects as "Collective Bargaining," the best means of bringing together employers and wage earners in proper negotiations and contract; "Injunctions in Labor Disputes"; "Industrial Democracy"; "Compulsory Arbitration" and other subjects affecting the economic life of the nation. Its Commission on Foreign Inquiry which made a study of the labor situation in Great Britain and France reported its findings in book form. The Social Insurance Department made two inquiries and issued reports giving the facts concerning the operation of foreign systems of sickness and unemployment insurance. It published a programme on health conservation. The Welfare Department, composed only of employers, is an educational movement to secure improvements in working and living conditions of wage earners by employers. The Profit Sharing Department of the Federation made two reports upon "Profit Sharing by Amer-

ican Employers" giving also examples in England and types in France. The third edition contained an analysis of over 200 plans by which payments beyond regular wages were being made to workers in this country. The Department on Study of Revolutionary Movements spent two years inquiring into the objectives, tactics, and activities of radical forces in our churches, colleges, universities, schools, women's organizations, social and philanthropic agencies, the press, etc., and among public employees and negroes. This department through its committee on Soviet propaganda in the United States, issued several pronouncements against the recognition by the United States of the Soviet régime in Russia, giving the moral, economic, and political objections. The Department for Research and Instruction in Current Economic and Political Movements is an endeavor to expound sound principles of representative government and of economics. Its purpose is to furnish material upon current conditions, tendencies, and movements. The Women's Department undertakes through survey and experimentation to arrive at a basis for constructive remedial legislation in matters relating to industrial, social, and economic life, primarily as it affects women and children. Its programme involved the following subjects: "Americanization," "Education," "Immigration," "Naturalization," "Public Health," and "National Defense." The annual meeting of the Federation was held January 30-31 in New York, at which the following subjects were discussed: "Conciliation and Arbitration" particularly with reference to railroad controversies; "Combinations in Restraint of Trade"; "Revolutionary Forces in the United States"; "The Russian Situation"; "Preventive Unemployment Measures"; and "Unemployment Insurance."

The official organ is the *National Civic Federation Review*. Headquarters are maintained in the Metropolitan Tower, New York City. Officers in 1921 were: Alton B. Parker, President; Samuel Gompers, Vice-president; V. Everit Macy, Vice-president; Samuel McRoberts, Vice-president; D. L. Cease, Secretary, Ralph M. Easley, Chairman Executive Council; and Miss Maude Wetmore, Chairman Women's Department.

NATIONAL FEDERATION OF MUSIC CLUBS. See *Music, Festivals*.

NATIONAL GUARDS. See *MILITARY PROGRESS*.

NATIONAL MUNICIPAL LEAGUE. This organization was founded in 1894. It aims to promote thorough investigation and discussion of the conditions and details of municipal administration, and of the methods for selecting and appointing officials in American cities, and of constitutions, laws, and ordinances relating to such subjects. It furnishes for public information in addition to the proceedings of its meetings, books and periodicals bearing upon the subjects of municipal government and municipal affairs. In the past few years the scope of the League has broadened to include county and State government. The twenty-seventh annual meeting was held in Chicago, November 16-18, at which time the complete model State constitution prepared by the League and outlined in the *YEAR BOOK* for 1920, was presented for debate and action. Other features of the meeting were the debate on the application of the city manager

principle to big cities, two sessions on housing and zoning and one on new sources of municipal revenue. In connection with the latter Governor McKelvie of Nebraska addressed the meeting on "What Administrative Organization Means to a State." Resolutions were adopted approving the policy of statutes of Nebraska and Iowa regarding ballots on which the names of presidential electors do not appear but are kept on file with the Secretary of State, only the names of the nominees for president and vice-president being entered upon the official election ballot. The *National Municipal Review* (monthly) is the official organ of the organization. A number of supplements which constitute important studies on various problems are published throughout the year. Of those in 1921 may be mentioned: a symposium on "Service at cost for street railways"; "State Parks"; and "A Model Pension and Election Law." Following action taken at the Indianapolis meeting in 1920, the League united with the American Civic Association. At the Chicago meeting, Colonel Henry M. Waite, formerly City Manager of Dayton, Ohio, was elected President to succeed the Hon. Charles E. Hughes on his assumption of the office of Secretary of State. Other officers are: Clinton Rogers Woodruff, Honorary Secretary; Frank A. Vanderlip, Treasurer. H. W. Dodds is Secretary and maintains headquarters of the League at 261 Broadway, New York.

NATIONAL PARKS. See PARKS, NATIONAL.

NATIONAL SAFETY COUNCIL. This organization grew out of a safety congress held under the auspices of the Association of Iron and Steel Electrical Engineers at Milwaukee, Wis., in 1912. The establishment of the Council dates from 1913. It is an association of companies and individuals interested in promoting safety in industrial establishments and also on the streets and in the home. Its field is the prevention of accidents, with related activities affecting the health, comfort, and welfare of industrial workers. Its membership comprises 4000 members operating 8000 industrial plants and employing more than 7,000,000 men. It conducts a safety service consisting of posters for the bulletin board, a monthly magazine entitled *National Safety News*, "Safe practices" pamphlets, and consultation. The council also organizes schools for foremen and safety supervisors, and has published in loose-leaf form outlines of lectures for such schools. Safety congresses are held annually.

The present organization of the congress consists of Engineering, Public Safety, Education, Health Service, and Women in Industry sections, and various other sections devoted to safety in particular industries. The Engineering Department of the Council consists of safety engineers who have in charge the preparation of all the bulletins and "Safe Practices" pamphlets, and who investigate and answer all inquiries for technical information. The "Safe Practices" pamphlets are the results of extensive research into the particular hazards and safe practices in the construction and operation of particular equipment. Officers for 1921-22 are: President, Arthur H. Young; Vice-President in charge of service to members, David S. Beyer; Vice-President in charge of Industrial Safety, B. F. Tillson; Vice-President in charge of Public Safety, David Van Schaack; Vice-President in charge of Local Councils, C. B. Scott; Vice-

President in charge of Sectional Activities, F. A. Davidson; Secretary and Treasurer, W. E. Worth. W. H. Cameron is Executive Secretary. S. J. Williams is Chief Engineer. Headquarters are at 168 North Michigan Avenue, Chicago.

NATIONAL SYMPHONY ORCHESTRA. See MUSIC, *Orchestras*.

NAVAL ACADEMY, U. S. See UNITED STATES NAVAL ACADEMY.

NAVAL PROGRESS. The prominent features for the year are the Conference for the Limitation of Armaments, and the bombing of surface vessels by airplanes—experiments conducted by the U. S. Navy and Army off the Virginia coast.

LIMITATION OF ARMAMENTS

When President Harding issued the call for a conference on the limitation of armaments the expectations of the world as to great and important results of the meeting were more hopeful than anticipatory. The clear-cut, definite proposition of Secretary Hughes was therefore all the more startling and generally satisfactory. As Great Britain, the United States, and Japan are the three greatest naval powers, the definite part of the proposals referred chiefly to them. As the Conference has not completed its labors at this date (December 27) and as a further approval by the various nations is necessary in some cases, it is not possible to give the final result. The following is the full official text of the American proposals with amendments agreed upon to date (December 27):

"The proposal of the United States for a limitation of naval armaments.

"The United States proposes the following plan for a limitation of the naval armaments of the conferring nations. The United States believes that this plan safely guards the interests of all concerned.

"In working out this proposal the United States has been guided by four general principles:

"(a) The elimination of all capital shipbuilding programmes, either actual or projected.

"(b) Further reduction through the scrapping of certain of the older ships.

"(c) That regard should be had to the existing naval strength of the conferring powers.

"(d) The use of capital ship tonnage as the measurement of strength for navies and a proportionate allowance of auxiliary combatant craft prescribed.

CAPITAL SHIPS—UNITED STATES

"1. The United States to scrap all new capital ships now under construction and on their way to completion. This included six battle cruisers and seven battleships on the ways and building and two battleships launched.

"(Note—Paragraph 1 involves a reduction of fifteen new capital ships under construction, with a total tonnage when completed of 618,000 tons. Total amount of money already spent on fifteen capital ships, \$332,000,000.)

"2. The United States to scrap all battleships up to but not including the *Delaware* and *North Dakota*.

"(Note—The number of old battleships

scrapped under Paragraph 2 is fifteen; their total tonnage is 227,740 tons. The grand total of capital ships to be scrapped is thirty, aggregating 845,740 tons.)"

Amendment. The battleships *Colorado* and *Washington* each of 32,600 tons, are allowed in place of the *Delaware* and *North Dakota* (of 20,000 tons each) which are to be scrapped.

GREAT BRITAIN

"3. Great Britain to stop further construction on the four new *Hoods*.

"(Note—Paragraph 3 involves a reduction of four new capital ships not yet laid down, but upon which money has been spent, with a total tonnage when completed of 172,000 tons.)

"4. In addition to the four *Hoods*, Great Britain to scrap her dreadnaughts, second line battleships and first line battleships up to but not including the *King George V.* class.

"(Note—Paragraph 4 involves the disposition of nineteen capital ships certain of which have already been scrapped, with a tonnage reduction of 411,375 tons. The grand total tonnage of ships scrapped under this agreement will be 583,375 tons.)"

Amendment. Two new battle cruisers of 35,000 tons are allowed in place of 3 ships of the *King George V.* class and the *Erin* (tonnage of the 4 ships, 91,910) which are to be scrapped.

JAPAN

"5. Japan to abandon her programme of ships not yet laid down, viz: The *Ki*, *Owari*, No. 7, No. 8, battleships, and Nos. 5, 6, 7, and 8, battle cruisers.

"(Note—Paragraph 5 does not involve the stopping of construction on any ship upon which construction has begun.)

"6. Japan to scrap three battleships: The *Mutsu*, launched; the *Tosa* and *Kaga*, building, and four battle cruisers, the *Amagi* and *Akagi*, building, and the *Atago* and *Takao*, not yet laid down, but for which certain material has been assembled.

"(Note—Paragraph 6 involves a reduction of seven new capital ships under construction, with a total tonnage when completed of 288,100 tons.)

"7. Japan to scrap all pre-dreadnaughts and capital ships of the second line. This to include the scrapping of all ships up to but not including the *Settsu*.

"(Note—Paragraph 7 involves the scrapping of ten older ships with a total tonnage of 159,828 tons. The grand total reduction of tonnage on vessels existing, laid down, or for which material has been assembled is 448,928 tons.)"

Amendment. The battleship *Mutsu* of 33,800 tons is to be allowed in place of the *Settsu* of 20,800 which is to be scrapped.

FRANCE AND ITALY

"8. In view of certain extraordinary conditions due to the World War affecting the existing strength of the navies of France and Italy, the United States does not consider necessary the discussion at this stage of the proceedings of the tonnage allowance of these nations, but proposes it be reserved for the later consideration of the conference."

Amendment. France and Italy are each to be allowed 175,000 tons of capital ships.

OTHER NEW CONSTRUCTION

"9. No other new capital ships shall be constructed during the period of this agreement except replacement tonnage as provided hereinafter.

"10. If the terms of this proposal are agreed to, then the United States, Great Britain and Japan agree that their navies, three months after the making of this agreement, shall consist of the following capital ships:"

LIST OF CAPITAL SHIPS

United States: *Maryland*, *California*, *Tennessee*, *Idaho*, *Mississippi*, *New Mexico*, *Arizona*, *Pennsylvania*, *Oklahoma*, *Nevada*, *Texas*, *New York*, *Arkansas*, *Wyoming*, *Utah*, *Florida*, *North Dakota*, *Delaware*. Total, 18. Total tonnage, 500,650.

Amendment. *Colorado* and *Washington* in place of *Delaware* and *North Dakota*. Total ships, 18. Total tonnage, 525,850.

GREAT BRITAIN: *Royal Sovereign*, *Royal Oak*, *Resolution*, *Ramillies*, *Revenge*, *Queen Elizabeth*, *Warspite*, *Valkent*, *Barham*, *Malaya*, *Benbow*, *Emperor of India*, *Iron Duke*, *Marlborough*, *Erin*, *King George V.*, *Centurion*, *Ajax*, *Hood*, *Renown*, *Repulse*, *Tiger*. Total, 22. Total tonnage, 604,450.

Amendment. Two battle cruisers of 35,000 tons to replace 3 battleships of *King George V.* type and the *Erin*. Total ships, 20. Total tonnage, 582,540.

JAPAN: *Nagato*, *Hiuga*, *Ise*, *Yamashiro*, *Fu-So*, *Settsu*, *Kirishima*, *Haruna*, *Hi-Yei*, *Kongo*. Total, 10. Total tonnage, 299,700.

Amendment. *Mutsu* in place of *Settsu*. Total ships, 10. Total tonnage, 312,700.

DISPOSITION OF OLD AND NEW CONSTRUCTION

"11. Capital ships shall be disposed of in accordance with methods to be agreed upon.

REPLACEMENTS

"12. (a) The tonnage basis for capital ship replacement under this proposal to be as follows:

United States, 500,000 tons.

Great Britain, 500,000 tons.

Japan, 300,000 tons."

Amendment.

United States, 525,000 tons.

Great Britain, 525,000 tons.

Japan, 315,000 tons.

"(b) Capital ships twenty years from date of completion may be replaced by new capital ship construction, but the keels of such new construction shall not be laid until the tonnage which it is to replace is seventeen years of age from date of completion. Provided, however, that the first replacement tonnage shall not be laid down until ten years from the date of the signing of this agreement.

"(c) The scrapping of capital ships replaced by new construction shall be undertaken not later than the date of completion of the new construction, and shall be completed within three

months of the date of completion of new construction, or, if the date of completion of new construction be delayed, then within four years of the laying of the keels of such new construction.

"(d) No capital ships shall be laid down during the term of this agreement whose tonnage displacement exceeds 35,000 tons.

"(e) The same rules for determining tonnage of capital ships shall apply to the ships of each of the powers party to this agreement.

"(f) Each of the powers party to this agreement agrees to inform promptly all the other powers party to this agreement concerning:

"(1) The names of the capital ships to be replaced by new construction.

"(2) The dates of authorization of replacement tonnage.

"(3) The dates of laying the keels of replacement tonnage.

"(4) The displacement tonnage of each new ship to be laid down.

"(5) The actual date of completion of each new ship.

"(6) The fact and date of the scrapping of ships replaced.

"(g) No fabricated parts of capital ships, including parts of hulls, engines and ordnance, shall be constructed previous to the date of authorization of replacement tonnage. A list of such parts will be furnished all powers party to this agreement.

"(h) In case of the loss or accidental destruction of capital ships, they may be replaced by new capital ship construction in conformity with the foregoing rules.

AUXILIARY COMBATANT CRAFT

"13. In treating this subject auxiliary combatant craft have been divided into three classes:

"(a) Auxiliary surface combatant craft.

"(b) Submarines.

"(c) Airplane carriers and aircraft.

"14. The term auxiliary surface combatant craft includes cruisers (exclusive of battle cruisers), flotilla leaders, destroyers, and all other surface types except those specifically exempted in the following paragraph:

"15. Existing monitors, unarmored surface craft as specified in Paragraph 16, under 3000 tons, fuel ships, supply ships, tenders, repair ships, tugs, mine sweepers and vessels readily convertible from merchant vessels are exempt from the terms of this agreement.

"16. No new auxiliary combatant craft may be built exempt from this agreement regarding limitation of naval armaments that exceed 3000 tons displacement and fifteen knots speed, and carry more than four 5-inch guns.

"17. It is proposed that the total tonnage of cruisers, flotilla leaders and destroyers allowed each power shall be as follows:

"For the United States, 450,000 tons.

"For Great Britain, 450,000 tons.

"For Japan, 270,000 tons.

"Provided, however, that no power party to this agreement whose total tonnage in auxiliary surface combatant craft on Nov. 11, 1921, exceeds the prescribed tonnage shall be required to scrap such excess tonnage until replacements begin, at which time the total tonnage of auxiliary combatant craft for each nation shall be

reduced to the prescribed allowance as herein stated.

LIMITATION OF NEW CONSTRUCTION

"18. (a) All auxiliary surface combatant craft whose keels have been laid down by Nov. 11, 1921, may be carried to completion.

"(b) No new construction in auxiliary surface combatant craft except replacement tonnage as provided hereinafter shall be laid down during the period of this agreement, provided, however, that such nations as have not reached the auxiliary surface combatant craft tonnage allowances hereinbefore stated may construct tonnage up to the limit of their allowance.

SCRAPPING OF OLD CONSTRUCTION

"19. (a) Auxiliary surface combatant craft shall be scrapped in accordance with methods to be agreed upon.

"(b) Submarines.

"20. It is proposed that the total tonnage of submarines allowed each power shall be as follows:

"For the United States, 90,000 tons.

"For Great Britain, 90,000 tons.

"For Japan, 54,000 tons.

"Provided, however, that no power party to this agreement whose total tonnage in submarines on Nov. 11, 1921, exceeds the prescribed tonnage shall be required to scrap such excess tonnage until replacements begin, at which time the total tonnage of submarines for each nation shall be reduced to the prescribed allowance as herein stated.

LIMITATION OF NEW CONSTRUCTION

"21. (a) All submarines whose keels have been laid down by Nov. 11, 1921, may be carried to completion.

"(b) No new submarine tonnage except replacement tonnage as provided hereinafter shall be laid down during the period of this agreement, provided, however, that such nations as have not reached the submarine tonnage allowance hereinbefore stated may construct tonnage up to the limit of their allowance.

SCRAPPING OF OLD CONSTRUCTION

"22. Submarines shall be scrapped in accordance with methods to be agreed upon.

(c)—AIRPLANE CARRIERS AND AIRCRAFT

"23. It is proposed that the total tonnage of airplane carriers allowed each power shall be as follows:

United States, 80,000 tons.

Great Britain, 80,000 tons.

Japan, 48,000 tons.

"Provided, however, that no power party to this agreement whose total tonnage in airplane carriers on Nov. 11, 1921, exceeds the prescribed tonnage shall be required to scrap such excess tonnage until replacements begin, at which time the total tonnage of airplane carriers for each nation shall be reduced to the prescribed allowance as herein stated.

LIMITATION OF NEW CONSTRUCTION, AIRPLANE CARRIERS

"24. (a) All airplane carriers whose keels have been laid down by Nov. 11, 1921, may be carried to completion.

"(b) No new airplane carrier tonnage except replacement tonnage as provided herein shall be laid down during the period of this agreement, provided, however, that such nations as have not reached the airplane carrier tonnage hereinbefore stated may construct tonnage up to the limit of their allowance.

SCRAPPING OF OLD CONSTRUCTION

"25. Airplane carriers shall be scrapped in accordance with methods to be agreed upon.

AUXILIARY COMBAT CRAFT, REPLACEMENTS

"26. (a) Cruisers seventeen years of age from date of completion may be replaced by new construction. The keels for such new construction shall not be laid until the tonnage it is intended to replace is fifteen years of age from date of completion.

"(b) Destroyers and flotilla leaders twelve years of age from date of completion may be replaced by new construction. The keels of such new construction shall not be laid until the tonnage it is intended to replace is eleven years of age from date of completion.

"(c) Submarines twelve years of age from date of completion may be replaced by new submarine construction, but the keels of such new construction shall not be laid until the tonnage which the new tonnage is to replace is eleven years of age from date of completion.

"(d) Airplane carriers twenty years of age from date of completion may be replaced by new airplane carrier construction, but the keels of such new construction shall not be laid until the tonnage which it is to replace is seventeen years of age from date of completion.

"(e) No surface vessels carrying guns of calibre greater than eight inches shall be laid down as replacement tonnage for auxiliary combatant surface craft.

"(f) The same rules for determining tonnage of auxiliary combatant craft shall apply to the ships of each of the powers party to this agreement.

"(g) The scrapping of ships replaced by new construction shall be undertaken not later than the date of completion of the new construction and shall be completed within three months of the date of completion of the new construction, or, if the completion of new tonnage is delayed, then within four years of the laying of the keels of such new construction.

"(h) Each of the powers party to this agreement agrees to inform all the other parties to this agreement concerning:

"(1) The names or numbers of the ships to be replaced by new construction.

"(2) The date of authorization of replacement tonnage.

"(3) The dates of laying the keels of replacement tonnage.

"(4) The displacement tonnage of each new ship to be laid down.

"(5) The actual date of completion of each new ship.

"(6) The fact and date of the scrapping of ships replaced.

"(i) No fabricated parts of auxiliary combatant craft, including parts of hulls, engines, and ordnance, will be constructed previous to the date of authorization of replacement tonnage. A list of such parts will be furnished all powers party to this agreement.

"(j) In case of the loss or accidental destruction of ships of this class they may be replaced by new construction in combatant vessels of any class in such a manner that they later may become combatant vessels in another navy. They bind themselves further not to acquire combatant vessels from any foreign source.

"29. No capital ship tonnage nor auxiliary combatant craft tonnage for foreign account shall be constructed within the jurisdiction of any one of the powers party to this agreement during the term of this agreement.

MERCHANT MARINE

"30. As the importance of the merchant marine is in inverse ratio to the size of naval armaments, regulations must be provided to govern its conversion features for war purposes."

The Conference was still in session on December 31. No decision had yet been reached in regard to the limiting tonnage for submarines. Great Britain asked that they be banned as a weapon of warfare. Secretary Hughes suggested the total tonnage of Great Britain and the United States to be 60,000 while the approximate present *status quo* be the limits for France, Japan, and Italy. The French were obdurate in demanding about 90,000 tons, so the subject was temporarily dropped. However, the first part of the Root resolutions had been acceded to. This provides that submarines must proceed like surface cruisers when operating against noncombatant craft. The submarine must not attack until surrender has been demanded and refused; and the vessel must not be destroyed until the crew and passengers have been placed in safety. The refusal of France to accept the limiting proposals for submarine tonnage has prevented a limit being set on anti-submarine craft—destroyers, submarine-chasers, etc.

As regards light cruisers and other auxiliary combatant craft, the limit of size is fixed at 10,000 tons and the calibre of guns carried by them at 8 inches. The maximum tonnage for an air-craft carrier is set at 27,000 tons. Great Britain and the United States are allowed a total tonnage of 135,000; Japan, 81,000; France and Italy, each 60,000.

NAVIES IN 1921

ARGENTINA. No vessel of any importance was added to the Argentine fleet in 1921. The main strength of the fighting force consists of the two battleships *Rivadavia* and *Moreno* of 28,450 tons, carrying 12 12-inch guns, built in the United States, and launched in 1911.

AUSTRIA-HUNGARY. The navy of the former dual monarchy has been divided amongst the Allies. The 12 battleships will all be demolished: also the 2 armored cruisers. Of the 9 light cruisers

the *Helgoland* and *Saida* of 3500 tons and 27 knots will be embodied in the Italian navy and a sister ship, the *Novara*, in the navy of France. Seven destroyers will be added to the Italian flotilla, 1 to that of France, and 1 to the Greek. The remainder have been assigned to Italy and France for demolition. Eleven torpedo boats now form part of the new navy of Jugo-Slavia, 7 are added to the Greek navy, 7 to that of Roumania, and 6 to that of Portugal. The others, assigned to various powers, will be demolished; and a similar fate is assigned to the miscellaneous naval craft.

BELGIUM. It is said that the Belgian government proposes to build and maintain a small force of destroyers and submarines for the defense of the coast. No definite programme has been announced but four small war craft—type unknown—have recently been ordered in France.

BRAZIL. In 1906, the Brazilian government authorised the construction abroad of three battleships of the dreadnaught type. One was launched in 1908 and one in 1909. The third, delayed for financial reasons, was sold to Turkey while on the ways and renamed the *Sultan Osman*. Not being ready for service when the Great War broke out, she was commandeered by the British government, completed, and named the *Agincourt*. She has now been sold to the Brazilian government and it is understood that her name will be the *Rio Janeiro*. Her displacement is 27,500 tons; speed, 22.5 knots; battery, 14 12-inch guns. The two earlier ships, the *Minas Geraes* and *Sao Paulo*, are of 19,280 tons, 21.5 knots speed, and carry 12 12-inch guns. The *Minas Geraes* is now in the United States undergoing transformation similar to that already done on the *Sao Paulo*. These two ships form the important part of the Brazilian navy, the remainder consisting of monitors, cruisers, and destroyers (ten to twenty-five years old), and 3 submarines of 250 tons.

CANADA. Some years ago, the Canadian government established at Halifax a naval college for the instruction of cadets as officers for the naval service. Only a portion of the graduates were commissioned, the remainder providing a potential reserve. On Sept. 1, 1921, a training establishment for the enlisted force was opened at Halifax, but the exact character of the training to be given has not been reported. The active vessels of the Canadian navy are the light cruiser *Aurora* (3500 tons, 30 knots, 2 8-inch and 7 4-inch guns—1 anti-aircraft; completed 1914); destroyers *Patriot* and *Patrician* (980 tons, 35 knots; completed 1916), four submarines, and two tenders for torpedo craft.

CHILE. The battleship *Almirante Latorre* (ex-Canada—See CHILEAN NAVY in YEAR BOOK for 1920, p. 468) has been returned to Chile by Great Britain; also three flotilla leaders of 1700 tons likewise commandeered at the outbreak of war. One flotilla leader of the same class was sunk during the war and the battleship *Almirante Cochrane* was transformed into an airplane carrier. As these two vessels could not be returned, it has been proposed to sell to Chile on favorable terms the battle cruisers *Indomitable* and *Inflexible* of 17,250 tons and 28 knots speed. No information in regard to the progress of the negotiations for these ships has recently appeared. In addition to the vessels mentioned, Chile has an old (1897) third-class battleship, two old (1897-98)

armored cruisers, three cruisers, two flotilla leaders, eight destroyers, several torpedo boats, and six submarines (1915-17).

CHINA. The Chinese navy contains no vessels of importance. There are seven light cruisers of 1900 to 4300 tons (1898-1912) and about a dozen gunboats in fair condition. A programme for the construction of additional cruisers has been submitted to the Peking government but it is doubtful if any will be built at present.

ESTHONIA. The Esthonian government desires to maintain its present force of 2 destroyers, 5 gunboats, 2 tugs, and 15 vedette boats. Nearly all of these vessels formerly belonged to the Russian government.

FINLAND. The naval force consists of 6 torpedo boats and 4 small gunboats. It is proposed to build a gunboat of 1000 tons and 4 submarines.

LATVIA possesses no naval force but desires to acquire 8 destroyers, 4 submarines, and 1500 submarine mines.

FRANCE. The condition of the French finances demands retrenchment in every possible way and the expenditure on the navy is being cut to the lowest practicable point. In 1913, the *Normandie* class of battleships was commenced. The vessels were to have a displacement of 25,000 tons, a speed of 21.5 knots, and to carry 12 13.4-inch guns in 3 4-gun turrets. Soon after the war broke out, all work was stopped on four of the ships, but the *Béarn* was kept in hand until after launching in 1915. The design called for vessels inferior in gunpower and protection to contemporary ships and if completed now would be outclassed by American, British, and Japanese ships already completed and would be still further inferior to those under construction or proposed. The four on the ways are therefore to be scrapped while the *Béarn* is to be completed as an airplane carrier. No additional battleships are contemplated at present, but the marked deficiency of the navy in fast light cruisers, flotilla leaders, and large destroyers is to be filled and additional submarines built. The new programme, to be completed in five or six years, is as follows: 6 light cruisers of 7500 to 8000 tons, 34 knots speed, to cost about 70 million francs each; 12 flotilla leaders of 2000 tons to cost 22 million francs each; 12 destroyers of about 1200 tons to cost 11 million francs each; 36 submarines of various types to cost 504 millions in the aggregate. The French navy of to-day consists of:—7 dreadnaught battleships (4 carrying 12-inch guns, 3 carrying 13.4-inch—all laid down two years or more before the war), with a total tonnage of 163,500; 10 pre-dreadnaught battleships of 168,280 tons; 5 armored cruisers of 55,100 tons and 23 to 25.5 knots speed; 11 ineffective armored cruisers; 2 old battleships of no particular value; 8 old cruisers (more than 20 years old); no modern light cruisers except 5 of a total tonnage of 22,650 turned over by Germany—all new vessels; no flotilla leaders except 1 turned over by Germany; 60 old and small destroyers—only a few over 400 tons; 25 modern destroyers of 685 to 880 tons; 9 destroyers of 780 to 1000 tons turned over by Germany and Austria; about 150 old and small torpedo boats; about 80 submarines, not more than half of which are of much value; 10 submarines turned over by Germany.

GERMANY. By the terms of the Treaty of Versailles, as amended, Germany was allowed

to retain 6 pre-dreadnaught battleships, 6 light cruisers, 12 destroyers, and 2 torpedo boats but no submarines. All other warships were to be delivered to the Allies or scrapped. Many of the "scrapped" ships have been converted to merchant vessels. Uncompleted battleships and cruisers were transformed into oil tankers and freighters, while destroyers and even submarines have been rebuilt as passenger or freight steamers, or oil carriers. The ships left in the German navy are organized in two fleets of about equal size—one in the Baltic and one in the North sea. Much care was taken in selecting the personnel of the new navy and some observers say that the organization appears excellent. But the formation of a well-disciplined and really efficient force seems unlikely until the "soviet" and communist ideas which broke up the old service are completely eradicated. (See YEAR BOOK for 1920, p. 470.) The terms of the peace treaty are not taken very seriously by Germany and she evidently intends some day to treat the naval clauses as "scraps of paper" when time and opportunity permit. In the meantime she plans for that future day. In the administrative and staff headquarters there are 1300 officers, an astonishing number for a navy that probably has a necessary enlisted force of not much over 10,000 men. Another significant fact is the very large number of officers assigned to specialist duties such as gunnery, torpedoes, navigation, organization, and the general staff. The only new ship laid down during the year is a light, fast cruiser of 6000 tons which has been commenced at Wilhelmshaven dockyard.

GREAT BRITAIN. The present British naval policy as foreshadowed by numerous speeches of Lord Lee (First Lord of the Admiralty) and other prominent British statesmen and definitely declared at the Washington Conference on the Limitation of Armaments, is a friendly agreement with the United States through which a rivalry in naval construction can be avoided. The navy estimates for 1921-22 provide for the completion of 2 large light cruisers of 9905 tons and 31 knots and 1 of 7720 tons and 33 knots; 2 flotilla leaders of 1778 tons and 36 knots; 2 destroyers of 1092 tons and 36 knots and 4 of 1346 tons and 34 to 36 knots; 6 submarines of 904 (surface) to 1097 (submerged) tons with corresponding speeds of 17.5 and 10.5 knots; 1 submarine of 1910 to 2693 tons with speeds of 24 and 9.5 knots; 1 airplane carrier of 23,145 tons and 24 knots and 1 of 11,125 tons and 25 knots. The proposed new construction consists of 4 new battle cruisers slightly larger and faster than the *Hood*; 1 submarine of new type; 1 mine layer of submergible type. The results of the Conference on the Limitation of Armaments seem to indicate that the number of battle cruisers will be reduced to two and these of 35,000 tons.

GREECE. The navy at present consists of the 2 old battleships (formerly the *Mississippi* and *Idaho*, of 13,000 tons) purchased from the United States; 3 small battleships of 4800 tons, rebuilt 1897-1900; the armored cruiser *Giorgios Averoff*, completed in 1912; the light cruiser *Heliki* (1914) of 2600 tons; 7 destroyers of 350 tons, 4 of 980 tons, and the ex-Austrian *Ulan* of 400 tons; 4 ex-Austrian torpedo boats of 250 tons and about a dozen older and smaller torpedo boats. Two of the old battleships of 4800 tons,

two old submarines, and some old destroyers and torpedo boats are to be sold. Two light cruisers and 6 torpedo boats are to be ordered in England, and 4 submarines are to be purchased from Italy. The battleship *Salamis* was ordered in Germany before the war and 25 million drachmas were paid to the Vulcan works on account. It does not appear that the Greek government now desires her completion; but what arrangements are being made with the Vulcan works are unknown. In the early part of 1921 a British naval commission was assisting to reorganise the Greek navy but no complete report of its labors has been published. The naval budget for 1920-21 amounted to 91,036,201 drachmas (the gold drachma is worth 19.3 cents).

ITALY. The existing navy consists of 5 dreadnaught battleships, total tonnage 108,570; 7 pre-dreadnaught battleships of 82,630 tons; 5 armored cruisers of 44,208 tons; 3 small, fast light cruisers, tonnage 10,020; 8 old light cruisers, tonnage 17,569; 12 new, fast scouts of 1000 to 2000 tons, total tonnage 18,372; 48 destroyers of 26,588 tons; 64 torpedo boats of 10,000 tons; and 71 submarines, of which about 60 are useful vessels. There are under construction 3 scouts of 2200 tons each, 6 destroyers of 800 tons, 8 destroyers of 900 tons, and several small vessels of no great military value. In addition to the foregoing, Italy received from Germany the light cruisers *Pillau* (4320 tons, 27.5 knots—renamed *Bari*), and *Strassburg* (4480 tons, 28 knots—renamed *Taranto*); from Austria the light cruisers *Helgoland* (3500 tons, 27 knots—renamed *Brindisi*) and *Saida* (3500 tons, 27 knots—renamed *Venezia*). Two destroyers were also received and renamed as well as some Austrian torpedo boats. The present budget (1921-22) authorizes the laying down of 8 mine layers of 800 tons, 1 oil fuel transport of 7000 tons, 4 submarines of 600 tons (surface displacement), 1 or 2 light cruisers of about 5000 tons, 4 destroyers of 900 tons, and 8 fast motor torpedo boats. The budget for 1921-22 authorizes an expenditure of 847,837,767 lire. The budget also authorizes the sale of all fighting vessels launched before 1904 and auxiliary craft launched before 1895.

JAPAN. Unlike the other Allies, Japan is hampered by no great war debt. Indeed the war saved her tottering finances. Such money difficulties as she has experienced have been due to tumbling prices since the war and a stubborn disregard of facts by the trades' unions. The net result of the war is that the government feels able, as it never has before, to enter into a naval building competition with the United States. So rapidly and steadily has this gone on that not only were they recently gaining on but they were laying down the newer and more powerful ships while we were lagging behind. The Japanese navy of to-day has 6 dreadnaught battleships of 178,320 tons, all but one carrying 14-inch or 16-inch guns; 4 battle cruisers of 27,500 tons each (total 110,000 tons), speed 28 knots, battery 8 14-inch guns; 11 pre-dreadnaught battleships of 168,000 tons; 3 large armored cruisers of 43,000 tons; 9 smaller armored cruisers of old type, tonnage 81,500; 3 light cruisers of 4950 tons and 26 knots, 2 of 3500 tons and 31 knots; 9 of 5500 to 5780 tons and 33 knots are built or building; 10 old cruisers are still in service

but of little military value; about 30 destroyers of 1200 to 1400 tons, 10 of 835 tons, and 24 smaller ones of about 375 tons are in service; also 20 or 30 old torpedo boats; and 20 or more submarines, the exact number completed being unknown, but there are a good many new boats completed or under construction in Japan. The other vessels under construction are:—battleships: *Mutsu* (33,800 tons, 8 16-inch guns), *Kaga* and *Tosa* (41,600 tons, 10 16-inch guns); battle cruisers: *Akagi* and *Amagi* (43,500 tons, 29 knots, 10 16-inch guns); 2 battle cruisers of the same class, but perhaps slightly larger, the *Atago* and *Takao*, were to be laid down about Nov. 1, 1921; 9 light cruisers of 5500 to 5780 tons (already referred to) are either built or building; about a dozen destroyers are in some stage of construction; and several submarines—number and size unknown. The programme of new construction, approved early in 1921, provides for 4 battleships (*Oviri*, Kii No. 7, and No. 8—battery 12 16-inch or 8 18-inch guns, displacement reported as 45,000 tons); 4 battle cruisers (no information published); 12 light cruisers (at least 2, probably 4, of 7000 tons or larger); 32 destroyers; 5 gunboats, 18 special ships (such as mine-sweepers, oil fuel ships, airplane carriers, etc.). This programme to be completed by 1927.

YUGO-SLAVIA. The kingdom of Serbia had no seacoast but by the addition of part of the Austro-Hungarian empire, thereby forming the new state of Yugo-Slavia, a short coast line on the Adriatic has been obtained. A navy department has therefore been established and was recently reorganized. Two old Austrian armorclads, *Erherzog Ferdinand Maz* and *Kronprinz Rudolf* were turned over by the French when they evacuated Cattaro; also eleven torpedo boats. In addition, the new navy has a number of gunboats, river monitors (on the Danube), etc.

LATVIA. The government does not at present possess a single war vessel of any kind but expects to purchase 8 destroyers and 4 submarines and to keep on hand 1500 submarine mines.

MEXICO. It is reported that the present government has disposed of all its war vessels with exception of one or two small craft in the Pacific.

NETHERLANDS. No new programme of naval construction was put forth during the year although there has been considerable discussion of the subject in parliament. On Dec. 29, 1920, the fast, light cruiser *Sumatra* was launched at Amsterdam. She is of 7150 tons, 30 knots speed, and will carry 10 6-inch guns.

PERU. The Peruvian navy is being reorganized under the direction of officers of the United States Navy, who will also give instruction in modern naval duties to the Peruvian officers. The vessels of the navy consist of two light cruisers of 3200 tons and 24 knots; 1 old cruiser of 1800 tons bought from France; 1 old cruiser of 1700 tons; 1 destroyer of 500 tons; and 2 submarines. The old French armored cruiser *Dupuy de Lôme* (6300 tons) was purchased from France just before the war and renamed the *Elias Aguirre*.

POLAND. The law creating the Polish navy was passed in 1919, and a naval school for officers was soon afterwards established at Thorn. The vessels of the navy are, at present, only gunboats and mine-sweepers, but 5 ex-German torpedo boats destined to Poland are being repaired in England.

PORTUGAL. The Portuguese navy consists of

5 old cruisers of 1000 to 4100 tons, 1 gunboat of 600 tons, 4 destroyers (1912-14) of 700 tons, 1 of 500 tons, several torpedo boats, and 4 submarines.

ROUMANIA. Three river monitors of 433 to 527 tons, formerly belonging to the Austro-Hungarian navy have been turned over to Roumania. Two fast gunboats, or flotilla leaders, of 1500 tons and 35 knots (formerly the *Nibbio* and *Sparviero*) have been purchased from Italy. In addition to these, the navy possesses 1 small cruiser of 1320 tons, 4 gunboats of 45 to 360 tons, 5 river gunboats of 90 to 105 tons, 4 river monitors of 670 tons, 4 destroyers of 1350 to 1450 tons, 5 or 6 torpedo boats of 550 tons, and other small craft of no military value.

RUSSIA. The general inefficiency of the Bolsheviks and their ignorance of mechanical and technical matters, together with their murder of most of the former officers of the fleet, have caused the vessels to become absolutely useless with the exception of those in which Baron Wrangel's forces escaped from the Crimea. These vessels are now at the French naval port of Bizerta in Algeria and have been turned over to the French government which has agreed to maintain them for the present. They consist of the dreadnaught battleship *General Alexieff* (ex-*Imperator Alexander III*) of 22,795 tons, the old battleship *Georgi Pobiedonosets* of 11,390 tons, the cruiser *General Korniloff* (ex-*Kagul*) of 6850 tons, 6 large destroyers of 1120 to 1345 tons, 4 small destroyers, 4 submarines, 1 yacht, and a transport of 16,250 tons; also some other vessels—destroyers, gunboats, etc., of a size and character not reported. The general condition reported in the YEAR BOOK for 1920 (p. 472) remains unchanged except for the worse.

SPAIN. During the war, like other neutral countries, Spain greatly improved its financial condition and is carrying out its naval programme with a speed never before reached. The last of the three battleships of 15,700 tons has been completed and commissioned. The Spanish fleet now consists of 3 dreadnaught battleships of 15,700 tons, 1 old (1887) battleship of 9744 tons, 3 old armored cruisers (6889 to 9089 tons); 2 protected cruisers of 5287 and 5778 tons; 2 small cruisers; several gunboats; 12 destroyers; and 10 or 11 submarines. There are under construction 4 light cruisers of 5500 to 6000 tons; 6 submarines (12 more will be built); 3 destroyers of 1145 tons; and two torpedo boats. A submarine salvage vessel built in Holland was added to the special service class in 1921. The naval appropriation for 1921-22 is 119,907,672 pesetas (1 peseta = \$0.193), of which 34,000,000 pesetas are allotted to new construction. The bill provides for a naval enlisted force of 13,400 men and a marine enlisted force of 4260.

SWEDEN. The naval budget for 1921 amounted to 28,752,254 crowns (1 gold crown = \$0.268) of which 1,950,000 was for new construction. For 1922, the minister of defense asks for 15,000,000 crowns for the construction of submarines. The new third-class battleship *Drottning Victoria* of 7800 tons, 4 11-inch guns, and 23 knots speed was completed and commissioned for service in 1921. The Swedish navy now consists of 3 third-class battleships of 7100 tons; 1 coast defense turret ship of 4200 tons, 1 of 4100, 4 of 3612, 4 of 3445, and 2 of 3240; 10 destroyers of 400 to



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SCRAPPING THE U.S.S. BROOKLYN
Showing the dismantled funnels which weigh about eighteen tons.





500 tons; 32 torpedo boats of 92 to 370 tons; 10 torpedo boats of 60 tons; and 11 submarines.

UNITED STATES. The naval Appropriation Act for 1921-22 authorizes a total expenditure of \$413,067,039.23 and fixes the personnel of the navy at 106,000 and of the Marine Corps at 21,000. It authorizes the completion of the 1916 programme of construction but as the sums available for work on the various ships were much below the estimates the rate of construction has been considerably reduced. If the present agreements of the Conference for the Limitation of Armaments are finally approved by the various governments, the slowing down of the work will result in financial gain. The effective force of the navy on Jan 1, 1922, consisted of the following:—18 dreadnaught battleships (6 armed with 12-inch guns, 11 with 14-inch guns, and 1 with 16-inch) of 500,650 tons; 15 pre-dreadnaught battleships of 227,740 tons; 12 armored cruisers of 148,715 tons; 11 old protected cruisers of 44,087 tons; 3 scout cruisers (25 knots) of 3750 tons; 4 gunboats of 5170 tons; 278 destroyers of about 300,000 tons; a large number of submarines (exact number rated as effective unknown) of about 80,000 tons. As shown in the accompanying table there are under construction: 3 battleships of 32,600 tons; 6 battleships of 43,200 tons; 6 battle cruisers of 43,500 tons; total battleships and battle cruisers, 15 of 618,000 tons; 10 light cruisers of 7100 tons—total 71,000 tons; 1 gunboat; 5 auxiliaries; 4 destroyers. Twelve additional destroyers are authorized but are not under construction or contract and will probably not be built. In its amended form the Armament agreement permits the retaining of the *Colorado* and *Washington* in place of the *Delaware* and *North Dakota*. If the agreement is finally approved, the last seven battleships of the table and the six battle cruisers will be scrapped. This is unfortunate as the navy needs at least four battle cruisers as a proper balance of power in capital ships. The other points in which the navy is deficient are light cruisers, flotilla leaders (or small fast cruisers), and air craft. The cruisers building will supply the first named need and it is to be hoped that the others will be filled in the near future.

**VESSELS UNDER CONSTRUCTION FOR U. S. NAVY;
PER CENT COMPLETE NOV. 1, 1921**

Type and name	Displacement (tons)	Per cent complete
Battleships:		
Colorado.....	32,600	83.0
Washington.....	32,600	69.8
West Virginia.....	32,600	64.0
South Dakota.....	43,200	35.2
Indiana.....	43,200	33.2
Montana.....	43,200	27.6
North Carolina.....	43,200	36.7
Iowa.....	43,200	29.9
Massachusetts.....	43,200	10.4
Battle cruisers:		
Lexington.....	43,500	26.7
Constellation.....	43,500	15.5
Saratoga.....	43,500	29.4
Ranger.....	43,500	2.9
Constitution.....	43,500	11.7
United States.....	43,500	11.1
Scout cruisers:		
Omaha.....	7,500	96.8
Milwaukee.....	7,500	93.7
Cincinnati.....	7,500	87.4
Raleigh.....	7,500	63.7
Detroit.....	7,500	71.6
Richmond.....	7,500	78.0

Type and name	Displacement (tons)	Per cent complete
Scout cruisers:		
Concord.....	7,500	71.0
Trenton.....	7,500	52.0
Marblehead.....	7,500	47.0
Memphis.....	7,500	40.0
Auxiliaries:		
Medusa (Repair ship).....	10,000	70.6
Dobbin (Destroyer tender).....	10,600	66.4
Whitney (Destroyer tender).....	10,600	36.8
Holland (Submarine tender).....	10,600	21.5
Wright (Aircraft tender).....	14,240	96.0
Patrol vessel:		
Tulsa (gunboat).....	1,575	71.1
Destroyers:		
Wasmuth.....	1,215	90.7
Trever.....	1,215	97.7
Perry.....	1,215	79.5
Decatur.....	1,215	73.7

In addition to the foregoing there are under construction 4 fleet submarines and 37 submarines; and there are authorized but not under construction 6 fleet submarines and 1 submarine.

AIR-CRAFT ATTACK ON SURFACE VESSELS. Ever since the war the U. S. Navy has been studying this question and formulating plans of experimental attacks. When certain German vessels were turned over to the United States for destruction and several superannuated battleships were made available for tests, the time for conducting the experiments seemed to have arrived. The Army, through the Secretary of War, was invited to participate in the work. Upon the conclusion of the tests, the Army and Navy Joint Board appointed to observe them made a report embodying the results and its opinion concerning the various points under consideration and test.

The old battleship *Iowa*, steaming slowly under radio control, was steered on varying courses such as a ship expecting aerial attack would naturally take.

The *Ostfriesland*, ex-German battleship, was the only other capital ship attacked. She lay without moving.

The weather and conditions as regards visibility and ease of operating aircraft were excellent.

Among other conclusions too numerous and extensive to be given here, the board concluded that, notwithstanding the satisfactory, comprehensive, and interesting character of the tests,—

(g) "The battleship is still the backbone of the fleet and the bulwark of the nation's sea defense, and will so remain so long as the safe navigation of the sea for purposes of trade or transportation is vital to success in war."

(h) "The aeroplane, like the submarine, destroyer, and mine, has added to the dangers to which battleships are exposed but has not made the battleship obsolete. The battleship still remains the greatest factor of naval strength."

(i) "The development of aircraft, instead of furnishing an economical instrument of war leading to the abolition of the battleship, has but added to the complexity of naval warfare."

(j) "The aviation and ordnance experiments conducted with the ex-German vessels as targets have proved that it has become imperative as a matter of national defense to provide for the maximum possible development of aviation in both the army and navy. They have proved also the necessity for aircraft carriers of the maximum size and speed to supply our fleet with the offen-

sive and defensive power which aircraft provide, within their radius of action, as an effective adjunct of the fleet. It is likewise essential that effective anti-aircraft armament be developed."

15. "Inasmuch as these experiments were not conducted under battle conditions it is difficult to draw conclusions as to the probability of hitting a target with bombs from aircraft while in action. Under the favorable conditions existing during the experiments—namely, stationary or practically stationary target, immunity from enemy interference, and excellent visibility and flying conditions, the percentage of hits was greatly in excess of that to be expected under battle conditions."

16. "The probability of hitting will be reduced in the case of a target moving at high speed on varying courses; further reduced if the target vessel is protected by effective anti-aircraft armament; and practically negligible if the target is protected by effective pursuit planes. On the other hand the probability of hitting will be increased by more efficient sighting and bomb-dropping control apparatus, by further training and further development of aerial tactics."

17. "In the present state of anti-aircraft defense it is believed that if an air force can obtain the mastery of the air, an effective percentage of hits can be obtained against surface vessels coming within the radius of action of bombing planes without an undue percentage of loss of aircraft. Anti-aircraft armament is in an early stage of development. The history of war indicates that means of defense develop rapidly to meet the development of offensive weapons. The effectiveness of the bomb carried by aircraft emphasizes the necessity for the rapid development of anti-aircraft armament and for the provision of pursuit planes as a part of the fleet."

18. "Aircraft carrying high-capacity, high explosive bombs of sufficient size have adequate offensive power to sink or seriously damage any naval vessel at present constructed, provided such projectiles can be placed in the water alongside the vessel. Furthermore, it will be difficult, if not impossible, to build any type of vessel of sufficient strength to withstand the destructive force that can be obtained with the largest bombs that aeroplanes may be able to carry from shore bases or sheltered harbors."

19. "High-capacity, high-explosive bombs hitting the upper works of a vessel are disastrous to exposed personnel, serious to light upper works, comparatively slight to heavy fittings such as guns, and negligible to turrets. The effect of direct hits was completely local. The most serious effect of bombs is the mining effect when such bombs explode close alongside and below the surface of the water."

20. "In the case of major ships, the mining effect of a bomb will be materially reduced due to the ability of the personnel to free the ship of large quantities of water by means of pumps, to distribute the excess water through the various compartments, and to shore up the water-tight doors and bulkheads which are in most serious danger of carrying away due to water pressure."

From these and other tests and from a general consideration of aircraft possibilities it is manifest that the battleship has a new and very serious enemy. But such enemies have been appearing ever since the dawn of history. In the early days of the galley period the adoption of the ram and

the development of the fast ram-galley caused the attempt to build very large fighting craft to be abandoned and stabilized the trireme. In the eighth century the invention of Greek fire and its retention as a state secret by the Eastern Empire nearly drove the fighting galleys of other powers from the seas. The development of the large handy sailing ship and the improvement in guns and gunpowder brought in the sailing battleship. This in turn succumbed to the steamer, the most powerful types becoming armor-plated as a protection against explosive shells and the increased power of the naval gun. Then came the submarine mine, the automobile torpedo and the torpedo boat, and the specially built armored ram. The enthusiastic advocates of these weapons declared the battleship would be driven from the sea. But it wasn't. It changed its design slightly, improved its speed and protection and provided itself with the torpedo boat destroyer and a special anti-torpedo boat battery of light guns. Then came the submarine with still more enthusiastic advocates. It in turn was curbed by the destroyer and patrol vessel so that in four years' war not more than one modern battleship was sunk by a submarine and it is believed that this casualty was caused by a mine and not by a submarine. The battleship will not be driven from the sea because it cannot be. It may change its design and form of protection. It may take on new means of defense and new defensive satellites but the battleship idea is indestructible. We must always have powerful ships with the greatest possible means of offense in order that we may strike as well as receive blows.

All that we know and can deduce from this knowledge impels us to the certain belief that the battleship is not rendered obsolete but that its activities in certain directions are curbed and hampered and its design may need change—possibly drastic change. It is certain however that, to enable the present type (or even some new design) to accomplish the purposes for which battleships are built, the aviation arm of the fleet must be greatly strengthened. With an adequate number of pursuit planes accompanying the fleet, effective bombing is reduced to a negligible danger and the surface ships are nearly as safe as ever. The next step is the adaptation of the bombing plane to fleet use. Up to the present no aircraft carrier has been built which readily permits such planes to take off or land. When bombers accompany fleets for use against other fleets then battleship design may need basic change. The production of a practicable helicopter may mean much in both attack and defense. See BATTLESHIPS AND OTHER WAR VESSELS.

NAVIES. See NAVAL PROGRESS.

NEBRASKA. POPULATION. According to the report of the census of 1920, there were 1,296,372 residents in the State, Jan. 1, 1920, as compared with 1,192,214 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Corn.....	1921	7,419,000	207,732,000	\$56,088,000
	1920	7,560,000	255,528,000	104,786,000
Oats.....	1921	2,585,000	70,054,000	14,711,000
	1920	2,400,000	83,040,000	30,725,000

Crop	Year	Acreage	Prod., bu.	Value
Barley.....	1921	199,000	4,915,000	1,376,000
	1920	256,000	7,424,000	3,712,000
Wheat.....	1921	3,967,000	59,875,000	49,696,000
	1920	3,593,000	60,480,000	79,229,000
Rye.....	1921	185,000	1,714,000	1,028,000
	1920	129,000	1,819,000	1,874,000
Hay.....	1921	3,821,000	4,712,000	29,194,000
	1920	3,965,000	5,553,000	53,755,000
Potatoes.....	1921	102,000	8,160,000	9,792,000
	1920	85,000	8,415,000	10,088,000

¹ Tons.

IRRIGATION. Irrigation conditions of the State in 1920 as compared with those in 1910 are shown in the accompanying table issued by the United States Bureau of the Census.

Item	Census of—	
	1920	1910
Number of all farms.....	124,417	129,678
Approximate land area of the state.....	acres.. 49,157,120	49,157,120
All land in farms.....	acres.. 42,225,475	38,622,021
Improved land in farms.....	acres.. 23,109,624	24,382,577
Number of farms irrigated.....	3,021	1,852
Area irrigated.....	acres.. 442,690	255,950
Area enterprises were capable of irrigating.....	acres.. 562,468	429,225
Area included in enterprises.....	acres.. 766,768	680,133
Per cent irrigated:		
Number of all farms.....	2.4	1.4
Approximate land area of state.....	0.9	0.5
Land in farms.....	1.0	0.7
Improved land in farms.....	1.9	1.0
Excess of area enterprises were capable of irrigating over area irrigated.....	acres.. 119,778	173,275
Excess of area included in enterprises over area irrigated.....	acres.. 324,078	424,183
Capital invested.....	\$13,909,185	\$7,798,310
Average per acre enterprises were capable of irrigating.....	24.73	18.17
Estimated final cost of existing enterprises.....	18,030,154	9,485,231
Average per acre included in enterprises.....	23.51	13.95
Average cost of operation and maintenance per acre.....	1.48	1.09

TRANSPORTATION. The total railway mileage of the State on Dec. 31, 1921, was 8392. The railroads having the longest mileage were: Chicago, Burlington and Quincy, 3601; Union Pacific, 2104; Chicago and Northwestern, 1306. Almost no railroad building was done during the year in Nebraska. Some roadbed was prepared, however, for projected extensions.

FINANCE. Owing to the financial stringency during the year, incident to shrunken prices for farm produce of all kinds, receipts at the State treasurer's office do not represent the total amount of taxes levied. The delinquency was not sufficient to embarrass the State in any of its activities, for funds were available to obviate the necessity of even short term borrowing. The total appropriations for the biennium ending June 30, 1923, amounted to \$25,792,256.33. Of this \$1,707,258.12 was to carry on construction work on the new State house building; \$1,077,434.48 is to pay the State's share of road building. The State has no bonded debt.

EDUCATION. The total school population in 1921 was 400,000. Enrollment in the public schools was 299,201; average daily attendance was 239,734. The number of teachers employed, male and female, was 13,978 and their average salary was \$100 per month. The total tax levied for support of graded schools in Nebraska for the year was \$25,253,518.17. For the support of the University of Nebraska the legislature appropriated \$6,056,954.34 for the biennium; and for the State normal schools, \$1,482,773.33.

POLITICS AND GOVERNMENT. The regular session of the legislature was held January-March.

For the first time appropriations were made in conformity to a budget prepared by the governor, under the amended State constitution. Plans for the erection of the new State capitol as presented by the commission were approved, the commission continued and an appropriation made to carry on the work. Much time of the legislature was taken up with consideration of a new revenue measure, and revision of the State banking law. No very extensive modifications were made in either. The so-called "code" law, under which the governor appoints a "cabinet" to administer the different departments of the State government, was strengthened by amendment. The office of State sheriff was created, the object being to assist local

peace officers in enforcing the laws. Salaries of all State officers were increased, as provided for by the new constitution.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Amendment prohibiting resident aliens from ownership of agricultural lands, the prohibition in the existing law applying only to non-resident aliens; provision for the preparation and presentation of a State budget; provision for the incorporation of coöperation associations; declaring English the official language of the State and prohibiting discrimination against its use by religious or social bodies; provision for a clinical psychologist under the supervision of the board of control; regulations in respect to pardons, indeterminate sentences paroles, commutations, etc.; definition of unlawful interference with work and prohibition of the same; raising school age from 14 to 16 years under certain conditions; raising the age minority of females to 21 years.

STATE OFFICERS. Governor, Samuel R. McKelvie; Lieutenant-Governor, P. A. Barrows; Secretary of State, D. M. Amsberry; Attorney-General, Clarence A. Davis; Auditor, George W. Marsh; Treasurer, D. B. Cropsey; Commissioner of Public lands, Dan Swanson; Railway Commissioners: Thorne A. Browne, H. G. Taylor, and Harry L. Cook; Superintendent of Public Instruction, John M. Matsen.

JUDICIARY. Supreme Court: Chief Justice, Andrew M. Morrissey; Associate Justices: Charles B. Letton, William B. Rose, George A. Day, James R. Dean, Chester H. Aldrich, and Leonard H. Flansburg.

NEBRASKA, UNIVERSITY OF. A co-educational State institution of the higher learning at Lincoln, Neb.; founded in 1869. The enrollment for the fall of 1921 was 4740 of whom 2942 were men and 1798 women. The largest number was in the College of Arts and Sciences, 1776, and next to that came Business Administration, Engineering, the Teachers' Department, and Agriculture. The enrollment for the summer was 1589. The above figures do not include students of other than college rank and students enrolled in the extension department for correspondence courses. Counting these, the total enrollment for the year including the summer session was about 7500. The faculty contained 289 members, of whom 14 were added during the year. There were 154,000 bound volumes in the library. The productive funds amounted to \$901,717 and the total income to \$3,065,681. A barn in the department of Agronomy and a photograph studio building were added during the year. Chancellor, Samuel Avery.

NECROLOGY. The following list contains the names of notable persons who died in 1920. Articles will be found in the YEAR BOOK in their alphabetical order on those whose names are mentioned below without other text.

Abbott, Ira Anson.
Adams, Frederick Upham.
Adams, Henry Carter.
Agostino, Father. Ecclesiastic, died in Italy, April 5. He was born in 1839.
Allen, Joel Asaph.
Allen, William Reynolds.
Ames, Charles Wilberforce.
Andrade, Francesco d'.
Ankeny, Levi.
Arellano, C. S. Jurist, former chief justice in the Philippines, died at Manila, March 4.
Armey, Henry Prentiss.
Arnold, Jacob H. Specialist in farm manurement. died July 12.
Augusta, Victoria.
Ayres, Stephen Cooper.
Ascarate, Tomas de. For eighteen years director of the San Fernando Instituto y Observatorio de Marina, died January 25.
Bachaus, Wilhelm.
Baer, Ben. Banker, died at St. Paul, Minn., July 27. He was born in 1845.
Bagot, Richard.
Baha, Abdul, or Abdul Baha Abbas.
Baier, Victor.
Bail, Joseph.
Bailey, Frank Harley.
Baker, Albert C. Justice of Arizona, died August 31 in Los Angeles. He was born in 1845.
Baker, William Edgar.
Baldwin, Jesse A. Judge, died at Oak Park, Ill., December 7. He was on the circuit bench of Cook County for twelve years. He was born at Greenwood, Ill., Aug. 9, 1854, studied at the University of Illinois and after teaching school for five years was admitted to the bar in 1877. He was a Trustee of Chicago University and Rush Medical College.
Balfour of Burleigh, Alexander Hugh Bruce, Lord.
Ballard, W. A. Railway president, died at South Bend, Ind., June 30. He was born in 1863.
Ballvian, Manuel Vicente.
Baneroff, Lady, born Marie Effie Wilton.
Barclay, Florence L.
Barker, Wharton.
Barnard, Edward Chester.
Barron, Sir Harry.
Barto, Daniel O. Associate in animal husbandry, Illinois University and Experiment Station, died, January 18.
Barton, John Kennedy.
Baruch, Simon.
Bavaria, Ludwig, King of.
Baxter, James Phinney.
Beckwith, Chas. D. Former Congressman from New Jersey, died, March 27, at Chatham, N. Y. He was born in 1838.
Bellingham, Sir (Allan) Henry.
Bennett, Charles Edwin.
Berthoff, Ellsworth Price.
Beseler, Hans Von.

Bickett, Thomas Walter.
Bigelow, Melville Madison.
Birbaum, Zislaw Alexander.
Bispham, David Scull.
Black, Samuel Charles.
Blackmon, Frederick Leonard.
Blackwell, Antoinette Louise Brown.
Blanck, Margot de.
Blessing, George Frederick.
Blomfield, Sir Richard Maesie.
Blount, William Alexander. Lawyer. President American Bar Association, died at Baltimore, Md., June 15. He was born in 1851.
Blydenburgh, Charles Edward.
Bogart, John B.
Bolo, Monsignor. French ecclesiastic, died in Paris, March 19. He was the brother of Bolo Parba executed for Treason in 1918 and a witness for the defense at the latter's trial.
Bologna, Clemente.
Bonaparte, Charles Joseph.
Bonucci, Charles F.
Booher, Charles F.
Book, George Milton.
Booker, Charles F. Congressman, died January 21, at Savannah, Mo. He was born in 1847.
Botkin, Jeremiah Dunham.
Bourget, Henry. Astronomer, died in 1921. He was a director of the Marseilles Observatory.
Bourquelot, Emile. Plant chemist, died, January 26.
Boutroux, Emile.
Bowditch, Charles Pickering.
Bowen, William Abraham.
Brain, Sir F. W. T. Civil engineer, died September 1 in London. He was born in 1855.
Brandt, Marianne (Marie Bischof).
Brann, Henry Athanasius.
Braun, Marcus. Publisher, died in Vienna, Austria, February 27.
Brechtsen, A. L. Specialist in the sterility of farm animals, died at Copenhagen, Denmark, September 11.
Bremer, Alexander.
Britton, Edward Elmo.
Brockhaus, Albert. German publisher, died, March 31. He was the head of the publishing house of F. A. Brockhaus of Leipzig especially noted for its encyclopedia, the Brockhaus *Konversationslexikon*.
Brooke, Flavius Lionel.
Brooks, William Robert.
Brower, George Vanderhoof.
Brown, James F.
Brown, Maurice.
Brownlow, Adelbert Wellington, Earl.
Bruce, Alexander H.
Bruce, William Spiers.
Brusa, Archbishop.
Bryant, Frank Augustus.
Budworth, Charles Edward Dutton.
Bülow, Karl Von. German field marshal and state official, died, in Berlin, August 31. He was born in 1845.
Burdett-Coutts, William Lehman-Ashmead-Bartlett.
Burgoyne, Sir John Montagu.
Burlin, Natalie Curtis.
Burnam, John Miller.
Burnham, Sherburne Wesley.
Burr, Willie Olcott.
Burroughs, John.
Butler, George Frank.
Calder, Frederick M. Judge, died at Utica, N. Y., January 17. He was born in 1862.
Calvé, Emma.
Cameron, Sir Charles Alexander.
Campbell, Ralph Emerson.
Campbell-Tipton, Louis.
Canada, William Wesley. Consul, died, May 17. He was born in Randolph County, Ind., June 8, 1850; received a high school and normal school education, and was admitted to the bar in 1874. After June, 1897 he was the American consul at Vera Cruz, Mexico.
Cantor, Jacob Aaron.
Carbonell, Luis Garcia Y. Astronomer, died in 1921. He was director of the National Observatory and head of the meteorological service of Cuba.
Carrasco, José.
Cartailhac, Emile.
Caruso, Enrico.
Cary, Annie Louise (Mrs. Charles M. Raymond).
Caryll, Ivan.
Casella, Alfredo.
Case, William Scoville.
Cassel, Sir Ernest. British financier, died September 22. He was born at Cologne, Germany, the son of a prominent banker. He was one of the leading financiers of the time and an intimate of the late King Edward.
Catron, Thomas Benton.
Chambers, Charles Haddon.

Charlier, Marcel.
 Chase, Emory Albert.
 Churchill, Lady Randolph.
 Clark, Champ.
 Clark, Jesse Redman.
 Clark, John Emory.
 Clarke, Eliot Channing.
 Clarke, Richard Floyd.
 Clinton, George Wylie.
 Clothier, Isaac Hallowell. Merchant, died, January 15. He was born at Philadelphia, Pa., Nov. 5, 1837 and educated in the Friends' School in that city. From 1868 to 1895 he was member of the firm of Strawbridge and Clothier, retiring in the latter year.
 Coan, Titus Munson.
 Coapman, Eugene H.
 Coates, Albert.
 Coats, Edward Hornor.
 Coffin, Owen Vincent.
 Cogswell, William Brown.
 Coit, Judson Boardman.
 Colt, Samuel Pomeroy.
 Combes, Justin Louis Emile.
 Concha, Senator Malaquias. Chilean social economist and scientist, died August 6. He was born in 1859.
 Connolly, Maurice.
 Converse, Edmund Cogswell. Capitalist, died at Pasadena, Cal., April 4. He was born at Boston, Mass., Nov. 7, 1849; and was a director or officer in a large number of important banking, insurance, and industrial companies.
 Cortesarena, José E. Argentine newspaper publisher, died at Buenos Aires, July 25. He was born in 1877.
 Cory, Charles Barney.
 Cowans, Sir John Steven.
 Craven, William George Robert, Earl of.
 Crocker, Francis Bacon.
 Crooks, William. Labor member of the British Parliament, died, June 5. He was born, Apr. 6, 1852; and in his boyhood worked as a cooper's apprentice. He was a member of parliament after 1903.
 Cross, Charles Robert.
 Cross, Howard B.
 Crothers, Thomas Wilson.
 Crowell, John Stevens. Publisher, died, August 17. He was born in 1850.
 Crozier, John Beattie.
 Cryer, Mathew Henry.
 Currier, Frank Dunklee.
 Cushing, Henry Platt.
 Cushing, William Lee. Educator, died at Simsbury, Conn., December 11. He was born at Phippsburg, Me., July 24, 1849; and graduated at Yale in 1872. He was headmaster of the Westminster School which he founded in 1893.
 Csaplicka, M. A. Geographer, died in 1921. She was born in 1860. She explored the siberian tundra between the Lena and Jenesei, 1914-15. When she died she was professor of geography in the University of Gieseen.
 Dale, Sir Alfred.
 Dalton, John Henry. Died at Chicago, Ill., November 29. He was born in 1861.
 Danforth, Loomis le Grand.
 Darby, William Johnson.
 Davies, (Sarah) Emily.
 Davis, Charles Henry.
 Davis, Walter Juan.
 Day, Erasmus Sheldon. Lawyer and former consul, died at Colchester, Conn., August 30. He was born in 1835.
 Defregger, Frans Von.
 D'Eu, Countess.
 Deutch, Gotthard.
 Diedrich, Frans. German poet, died in 1921.
 Dimitroff, Alexander. Bulgarian minister of war, assassinated near Kostondil, October 22. He was born at Kostondil in 1877.
 Dobson, Henry Austin.
 D'Oca, R. C. Archbishop of San Luis Potosi, Mex., died in New York City, August 18.
 Dodge, David Stuart.
 Dohnányi, Ernst.
 Dowling, Michael John.
 Drago, Luis Maria.
 Draper, W. H. Former Congressman, died at Troy, N. Y., December 7. He was born in 1841.
 Drum, Walter.
 Drummond, Andrew L. Former Chief of the United States Secret Service, died February 12. He was born in 1845.
 Dubost, Antonin.
 Ducie, Henry John Moreton, Earl of. British officer known as "father of the House of Lords," died at Falfeld, England, October 28. For sixty-eight years he was a member of the House of Lords. He was born in 1827 and lived through five reigns.
 Dunlop, J. S.
 Dupin, M. A.
 Dupré, Marcel.
 Dvorak, Max. Art expert, died at Vienna, February 9.

Earle, Lawrence Carmichael. Painter, died in 1921. He was born in New York City, Nov. 11, 1845; studied in Munich, Florence and Rome; and practiced his art continuously after 1869.
 Egerton, Sir Charles Comyn.
 Eldridge, Frank Harold.
 Elwes, Gervase. Tenor, died in Boston, January 12.
 Engel, Peter.
 Eulenburg, Prince Philip Zu. German diplomat, died, September 16. He was born in 1847. He was Ambassador at Vienna, 1894-1902. He was among those intimates of the Emperor who were attacked by the journalist Harden in the Zukunft in 1907. He was the author of several volumes including poems and short stories.
 Evans, Henry Clay.
 Evans, Mary. College president, died at Painsville, O., Nov. 11.
 Farley, Michael F. Former congressman, died, October 8. He was born in 1864.
 Farrar, James McNall.
 Farrelly, John P.
 Faversham, Mrs. William.
 Fechteler, Augustus Francis.
 Ferguson, Thompson B. Former governor of Oklahoma, died, February 14.
 Fernald, Charles Henry. Entomologist, died, February 22 in Massachusetts. He was born in 1838, was professor in the Massachusetts Agricultural College, 1886-1910, and the author of several important treatises in entomology.
 Ferrari, Cardinal. Archbishop of Milan, died February 2. He was born in 1850.
 Feydeau, George L. French play writer, died in Paris, June 6. He was born in 1862.
 Field, Herbert Haviland.
 Figueras, A. Mexican general, died in Texas, January 10.
 Fisher, Sydney Arthur.
 Fiske, Amos Kidder.
 Fitzgerald, A. L. Ex-chief justice of Nevada, died in Boston, Mass., August 31. He was 81 years of age.
 Fletcher, Sir Lazarus.
 Flood, Henry Delaware.
 Foerster, Wilhelm. Astronomer, died, January 18. He was former director of the Berlin Observatory.
 Forney, James.
 Forrer, Louis. Ex-president of Switzerland, died at Berne, September 29. He was born in 1845. He was leader of the radical party in the Bundesrat.
 Foster, Murphy James.
 Fowler, Benjamin Austin.
 Fowler, William Warde.
 Freedman, John Joseph. Judge, died, October 31. He was born at Nuremberg, Germany, Oct. 7, 1835; came to the United States at the age of sixteen; and was admitted to the bar in 1860. He was judge of the supreme court of New York from 1896 to 1904.
 French, Francis Henry.
 Fried, Alfred H. German writer, died May 5. He was born in 1864. His writings were concerned with pacifism and problems of international peace.
 Friedenthal Albert.
 Friedmann, Ignas.
 Fucini, Renato. Poet, died in Rome, February 25. He was born in 1843.
 Galbraith, Frederick W., Jr. National commander of the American Legion, died, June 9. He was born in 1874. He was particularly active during the last year of his life in efforts on behalf of disabled soldiers. See LEGION, AMERICAN.
 Gambrell, James Bruton.
 Garcia y Carbonell, Luis. See above Carbonell, Luis Garcia y.
 Gardner, John J. Former Congressman, died at Burlington, Vt. February 7.
 Gaynor, Jessie Smith.
 Gervais, A. A. French naval officer, died at Nice, France, March 17. He was born in 1837. At the time of his death he held the rank of vice-admiral.
 Geestfeld, Ursula Newell.
 Gibbons, James.
 Gibbons, Thomas Edward.
 Gibson, John Monro.
 Gilman, John E.
 Gilmore, Thomas Mador. Editor, died at Louisville, Ky., June 5. He was born at Columbus, Ga., Sept. 4, 1858 and was the originator and president of the National Model License League. He was a writer and speaker on the subject of saloon reform.
 Glasson, Edwin J. Horticultural editor and long a contributor to the Year Book, died, February 18.
 Gorrostieta, L. E. Former Secretary of the Mexican Treasury, died at Laredo, Texas, May 8.
 Gomez, José Miguel.
 Gordon, Seth Chase.
 Gould, Ashley Mulgrave.
 Grace, Thomas.
 Graham, Peter.
 Grandidier, Alfred.

Grange, E. A. A. Former principal of the Ontario Veterinary College, died, July 25.
 Greene, Francis Vinton.
 Greene, Henry Alexander.
 Gresham, Herbert. Producer and actor, died, February 23. He was born in 1853.
 Grünebaum, B. F. S. (Count Gregory). Died at Berlin in November. He was born in 1862.
 Gunsaulus, Frank Wakeley.
 Grosscup, Peter Stenger.
 Grover, G. Astronomer, died in 1921. He was known for observations of variable stars.
 Gunther, Duke Ernst. Died in Silesia, February 23.
 Hager, George J.
 Hagerup, Georg F. Norwegian state official, died at Christiania, Norway, February 8. He was formerly Prime Minister.
 Haig, Axel Herman.
 Haines, John Peter.
 Hale, Albert Cable.
 Hale, Richard.
 Hall, Herschel S. Writer of American fiction, died, February 6. He was born in 1874.
 Hall, Luther Egbert.
 Hall, Randall Cooke.
 Halsbury, Hardinge Stanley Giffard, Earl of.
 Halsey, Abraham Woodruff.
 Hamilton, John. Former Secretary of Agriculture of Pennsylvania, and prominent Farmers' Institute specialist, died, July 6.
 Hann, Julius von.
 Hanna, Dan R. Newspaper publisher, died at Croton, N. Y., November 3. He was the son of the late Senator Marcus Hanna. He was proprietor of the *Cleveland Leader and News* and endowed a school of journalism in 1913.
 Hanna, Septimus James.
 Hannaford, Phebe Ann.
 Hanson, Joseph Miles.
 Hara, Takashi.
 Hare, Sir John.
 Harkins, Matthew.
 Harper, Edward Thomson.
 Harper, John Erasmus.
 Harris, Merriman Colbert.
 Hase, Oskar von.
 Haselton, Seneca.
 Hauptmann, Carl. German author, brother of Gerhart Hauptmann, died at Berlin, February 4.
 Hawker, Harry G. Aviator, was killed in the fall of an airplane near London, England, July 12. He was known for his attempted Transatlantic flight in a biplane in 1919. On May 18 of that year Major Hawker and Commander MacKenzie Grieve flew from St. Johns but landed on the ocean about half way across. They were rescued by a Danish vessel.
 Hawley, Robert Bradley.
 Hayden, James Raynor.
 Hays, John.
 Haselton, George Cochrane. Lawyer and dramatic writer, died, June 24. He was part author of the successful play, *The Yellow Jacket*.
 Healy, A. Augustus.
 Hedge, Charles Gorham. Railway official, died at Garden City, N. Y., March 6. He was born in 1852.
 Hellbutt, Emil. German art critic, died, February 23.
 Hempl, George.
 Henderson, Sir David.
 Henry, E(dward) Stevens.
 Hepburn, Andrew Dousa.
 Herbert, Sir Arthur (James).
 Hernandez, José Manuel.
 Hert, Alvin Tobias.
 Hester, William.
 Hewett, Waterman Thomas.
 Hewitt, Peter Cooper.
 Hexamer, Charles John.
 Hieronymus, G. Botanical editor, died, January 18.
 Hildebrand, Adolf von. Sculptor, died at Munich, January 18. He was born in 1847.
 Hillard, Charles W.
 Hite, B. H. Professor and chemist, West Virginia Experiment Station died in October.
 Hoar, Edward Wallace. Veterinarian, died, November 26 at Cork, Ireland. He was well known for his contributions to veterinary literature.
 Hodgson, Henry.
 Hogg, William Stetson.
 Holliday, John Hampden.
 Hook, William Cather.
 Horlick, Sir James. British manufacturer, died in London, May 8. His name is well known throughout the British Empire and the United States as the manufacturer of Horlick's Malted Milk. He was born in 1844; and was the founder and subsequently chairman of the Horlick's Malted Milk Company.
 Hornung, Ernest William.

Hoskins, William Horace.
 Housé, Emile. Belgian anthropologist, died in 1921. See article ANTHROPOLOGY.
 Howard, Robert Jared Bliss. British physician, died in London, January 8. He was educated at McGill University, Canada, and at the London Hospital; and married the Baroness Strathcona.
 Howard, Sir Henry. British diplomat, died at Rome, Italy, May 4. He was born in 1843 and represented Great Britain in the United States, the Netherlands, Greece, Denmark, China, Russia, France and other countries, at the Hague 1896 to 1906, and at the Vatican 1914 to 1916.
 Howland, Thomas Smith.
 Hoyle, Eli Dubose.
 Hudson, Charles Tracy.
 Hudson, Edmund.
 Hughes, Sir Samuel.
 Hull, George Huntington.
 Humbert, General.
 Humperdinck, Engelbert.
 Huneker, James Gibbons.
 Hunter, Mason.
 Hutchins, James Calhoun.
 Hviezdoslav, Paul Orsagh. Slovak poet, died in the winter. He was born in 1849, and ranked among the leading contemporary poets in Slovakia.
 Hyde, Ammi Bradford.
 Hyndman, Henry Mayers.
 Iddings, Lewis Morris.
 Ide, Henry Clay.
 Ihmsen, Maximilian Frederick.
 Ingram, Eleanor Marie.
 Irons, James Anderson.
 Israel, Rogers.
 Jackson, Frederick Huth.
 Jackson, Henry.
 Jacobi, Victor.
 Jastrow, Morris.
 Jenkins, James Graham.
 Jerningham, Charles Edward Wynne.
 Jones, Kennedy.
 Jones, Mabel Cronise (Mrs. Thomas McDowell Jones).
 Jones, William Ambrose.
 Jordan, John, Woolf. Librarian and historian, died at Wilmington, De. June 12. He was born in 1841.
 Kalbeck, Max. Poet and critic of Vienna, died in 1921. He was born in 1850 and wrote under the pen-name of Jeremias Wentlich. His critical writings were especially known, but he also wrote successfully for the stage.
 Kane, James Johnson. Naval chaplain, died at Philadelphia, Pa., March 10. He was born in 1837.
 Kendall, Calvin Noyes.
 Kennedy, Sir John.
 Kerwin, James Charles. Judge, died at Madison, Wis., January 29. He was born at Menasha, Wis., May 4, 1850 and was admitted to the bar 1875. He was a regent of the University of Wisconsin, 1901-04; associate justice of the supreme court of the state after January, 1906.
 Ketcham, William Alexander.
 Kiener, Leon.
 Kiernan, William.
 Kilbourne, James.
 Kindieberger, David.
 King, Oscar A. Neurologist, died at Lake Geneva, Wis., September 11, 1921.
 King, William Fletcher. Educator, died at Mt. Vernon, Iowa, October 23. He was born near Zanesville, Ohio, Dec. 20, 1830 and graduated at Ohio Wesleyan University, 1857. He entered the faculty of Cornell College, Iowa, in 1862 becoming president of that institution in 1865 and serving for over forty years. He published a volume of *Reminiscences* in 1915.
 Kirkman, Marshall Monroe.
 Knapp, Philip Coombe.
 Knox, Philander Chase.
 Knox, Vesey.
 Kogel, Gustav Friedrich.
 Kondo, Baron R. Japanese ship owner, died at Tokyo, February 9.
 Korolenko, Vladimir.
 Koudelka, Joseph Maria.
 Kranberg, Julius.
 Kropotkin, Prince Peter Alexievitch.
 Kuropatkin, Alexei Nikolaievitch.
 Kutz, George Fink.
 Ladd, George Trumbull.
 Lamb, Roland O.
 Lambuth, Walter Russell.
 Lane, Franklin Knight.
 Langdon, Woodbury.
 Laurens, Jean Paul. French painter, died in Paris, March 23. He was born in 1838.
 Law, James.
 Laws, Samuel Spahr.
 Lederle, Ernst Joseph.
 Ledyard, Henry Brockholst.

- Lewis, Wilson Seeley.
 Lincoln, Mrs. Mary Johnson (Bailey).
 Lindley, Lord (Nathaniel Lindley).
 Lippmann, Gabriel. French physicist, died at sea in July. He was born in 1845 and made important discoveries in color photography. He received the Nobel prize for physics in 1908.
 Little, Charles.
 Logan, Leavitt Curtis.
 Longfellow, Ernest Wadsworth.
 Lowney, Walter M. Manufacturer, died, April 4. He was born at Sebec, Me., Sept. 2, 1855; educated in the public schools of Bangor; and went into the manufacture of chocolate bonbons at Boston in 1883. The business grew into the Walter M. Lowney Manufacturing company which was known all over this country and in Canada.
 Loyson, Paul Hyacinthe.
 Luke, John G.
 Lung, George Augustus.
 Lyman, Henry Darius.
 McCabe, William Gordon.
 McCarthy, Charles.
 McCombs, William Frank.
 McDonnell, Charles Edward.
 Macdonell, Sir John.
 McGhie, John.
 MacGraw, Theodore Andrews. Surgeon, died at Detroit, Mich., September 6. He was born in 1840.
 McGregor, Thomas. Army officer, died at Benicia, Cal., February 4. He was born in 1837. At the time of his death he held the rank of brigadier-general (retired).
 Mackenzie, Alexander.
 Mackenzie, Cameron.
 McIntire, Charles. Physician, died in 1921. He was born at Philadelphia, Pa., Aug. 30, 1847; graduated at Lafayette College in 1868 and in medicine at the University of Pennsylvania in 1873. He was a teacher and lecturer in chemistry and sanitary science at Lafayette College from 1868 to 1906. From 1902 to 1903 he was president of the American Academy of Medicine, and treasurer after 1916.
 McKenna, Edward William.
 McKim, Randolph Harrison.
 McQuarrie, C. K. State Agent of Agricultural Extension in Florida, died, November 16.
 Maher, James Denis. Clerk of the United States Supreme Court, died at Washington, D. C., June 3. He was born at West Point, N. Y., Oct. 1, 1854; and was appointed clerk of the United States Supreme Court, Oct. 20, 1913.
 Malkowsky, Georg. German journalist, novelist and playwright, died May 27.
 Mancinelli, Luigi.
 Mancrede, Charles B. G. De. Surgeon and author, died, April 13. He was born in 1848.
 Mann, Matthew Derbyshire.
 Maustius, Karl. Danish writer, died in 1921. He was the author of a *History of Theatrical Art; Molière and His Time; Letters from the Other Side* (an account of a visit to America); all published in Copenhagen.
 Marcel, Lucille. Austrian operatic singer, died, June 23. She was born in 1887; and sang soprano parts.
 Marshall, Anselma. French aviator, died in Paris toward the end of June. He was best known for his flight over Berlin in June, 1916, when he distributed pamphlets throughout the city. In attempting to cross Germany into Russian lines he was obliged to land on German territory and was taken prisoner, but later escaped with the aviator Garros.
 Maretsak, Max.
 Marquess, William Hoge.
 Marshall, Thomas Frank.
 Martin, Louis. Proprietor for many years of well known restaurants in New York City, died, November 16.
 Martin, Samuel Albert.
 Mason, William Ernest.
 Masterson, William Barclay (Bat Masterson).
 Matuschot, L. Botanist, University of Paris, died Paris, July 6.
 Maudhuy, L. E. De. French general, died, July 16. He was born in 1868. During the late war he commanded the 10th army in the first battle of the Marne; and after the war was military governor of Metz.
 Mercier, Auguste. French general whose name became prominent during the Dreyfus affair, died in Paris, March 3. He was born in 1834. He was French minister of war in 1894, and was responsible for the first conviction of Dreyfus.
 Metternich, Pauline.
 Miffin, George Harrison.
 Miffin, Lloyd.
 Milford Haven, Marquis of (Admiral Louis Alexander Mountbatten; formerly Prince Louis of Battenberg).
 Miller, Daniel Long.
 Mitchell, Charles Andrews. Educator, died, April 19. He was born at Norwalk, O., April 5, 1857; graduated with honor at Harvard in 1881; and for several years taught in preparatory schools. In September, 1900 he became the principal and associate owner of the Ashville (N. C.) School for Boys.
 Molesworth, Mrs.
 Montague, Dwight Preston.
 Montelius, Oscar.
 Montesquieu-Fesensac, Count Robert de.
 Moon, John Austin.
 Moore, Frank A.
 Morf, Heinrich. Educator, died at Thun, Switzerland, January 26. He was born in 1855.
 Morris, George Perry.
 Morrison, Henry C.
 Morrissey, Andrew.
 Morrissey, Andrew Marcus.
 Morse, Charles Hoemer.
 Morse, Robert McNeill. Lawyer, died in 1921. He was born at Boston, Mass., Aug. 11, 1837; graduated at Harvard in 1857; admitted to the bar in 1860, and practiced law in Boston. He was several times a member of the Massachusetts legislature.
 Moule, Charles Walter.
 Moulton, John Fletcher, Lord.
 Mulholland, Ross (Lady Gilbert).
 Mulry, Joseph Aloysius.
 Murat, G. St.
 Murphy, John Francis.
 Murphy, Starr Jocelyn.
 Murray, Thomas. Official of the United States Steel Corporation, died at Sparkill, N. Y., December 27. He was born at Jersey City, N. J., Dec. 14, 1867; entered the employment of the Federal Steel company in 1894 and became assistant-secretary of the Steel Corporation on its organization in 1901.
 Nathan, Ernesto.
 Newell, William Whiting.
 Newkirk, Garrett.
 Nicholas I (former King of Montenegro).
 Nilsson, Christine.
 Niox, General.
 Northrup, Ansel Judd.
 Northrup, Henry Evans.
 Nottingham, William.
 Noyes, Charles Phelps.
 Oberly, Eunice Rockwood. Agricultural librarian and bibliographer, died, November 5.
 Oberly, Eunice Rockwood. Agricultural librarian and Odling, William.
 O'Gorman, Thomas.
 Onions, Alfred. British Member of Parliament, died in Tredegar, England in July. He was born at Salok, England, Oct. 30, 1858, the son of a collier, and was elected to Parliament as the result of the Miners' Federation Campaign at the last election.
 Opp, Julie (Mrs. William Faversham).
 Oppenheimer, Sir Bernard.
 Ostrander, Fannie Elisa.
 Page, S(amuel) Davis.
 Pardo Basan, Emilia, Countess of.
 Park, Sir Maitland.
 Parkhurst, Frederic Hale.
 Patten, C. G. Horticulturist, died, November 28. He was famous as the originator of the Patten Greening apple and other hardy fruits.
 Paynter, Thomas H.
 Pearson, Sir Arthur.
 Peck, Henry Allen.
 Peck, Tracy.
 Pennie, John C.
 Penrose, Boles.
 Perin, George Landor.
 Perkins, Edmund Taylor.
 Perrier, Edmond.
 Peter I.
 Peters, John Punnett.
 Peterson, Sir William.
 Phillips, F. C.
 Pierson, Alden. Artist, died in 1921. He was born at Baltimore, Md., Oct. 19, 1873; and educated at the Maryland Institute School of Art and Design, Baltimore. After January, 1912 he was art manager of the *American Magazine*.
 Pike, Frederick Owen. British naval officer, died, April 5. He was born in 1851; and was retired with the rank of vice-admiral in 1911, but returned to active service during the late war.
 Pinto de Almeida, Antero.
 Piper, Otto. German author, editor and publisher of Munich, died in 1921.
 Platner, John Winthrop.
 Platner, Samuel Ball.
 Pösch, Rudolf. Austrian anthropologist, died in 1921. See article ANTHROPOLOGY.
 Pos, Sir Edmund Samuel.
 Ponchielli, Teresa Brambilla.
 Porritt, Edward.
 Porter, Henry Kirke.
 Porter, Horace.
 Poesart, Ernest Von.
 Post, James D. Former Congressman, died at Nutley.

N. J., April 1. He was born in 1846. He served as a police magistrate.

Potter, Paul Meredith.
 Pouglin, Arthur.
 Pradilla, Fr. Painter, died at Madrid, November 1.
 Preus, Christian Keyser. College president, died, May 29.
 Pritchard, Peter Connelly.
 Prouty, Charles Asro.
 Pyne, Moses Taylor.
 Rader, F. E. Superintendent of Experiment Station at Matanuska, Alaska, died, December 28.
 Ramsay, George Gilbert.
 Randall, Frank Lange.
 Randolph, Carman Fits.
 Randolph, Epes.
 Randolph, Lewis Van Syckle Fits.
 Ransborough, John Fielden Brocklehurst, Lord.
 Ranschoff, Joseph.
 Reade, Philip.
 Reinach, Joseph.
 Reyes, Rafael.
 Rhaliys Demetrios. Former Prime Minister of Greece, died, August 19. He was born in 1840.
 Ranksborough, John Fielden Brocklehurst, Lord. British army officer, died, February 28. He was educated at Rugby, and graduated at Trinity College, Cambridge in 1873. In the following year he entered the army and commanded in the Royal Horse Guards from 1894 to 1899. In the meanwhile he had served with honor in the Egyptian war of 1882 and the Nile Expedition of 1884-1885.
 Reyes, Rafael. Former president of Colombia, died at Bogota, February 19.
 Rhys-Herbert, William.
 Richards, Frederick Thompson.
 Richards, Joseph William.
 Richmond, Sir William Blake.
 Richter, Max. Leading German potash manufacturer, died at Berlin, May 14. He was born in 1856.
 Ritchie, Arthur. Clergyman, died at Nyack, N. Y., July 9. He was born in 1849.
 Ritchie, John Gerald.
 Ritter, Paul. Diplomat, died at Zurich, Switzerland, June 2. He was born in 1865.
 Rittner, Thaddaus. German dramatist, author of recent successes, died in 1921.
 Roberts, Benjamin Kearney.
 Roche, Alexander.
 Rogers, William King.
 Rosa, Edward Bennett.
 Rosen, Baron Roman Romanovitch.
 Rosemore, Derrick Warner William Westenra, Fifth Baron.
 Rougemont, Louis de.
 Ruckman, John Wilson.
 Ruthven, Walter James Hore-Ruthven.
 Saint-Saëns, (Charles-) Camille.
 Saltus, Edgar.
 Samarov, Olga.
 Sampson, Archibald J.
 Sanders, Henry Martin. Clergyman, died in Maine, July 22. He was born in 1850.
 Sandhurst, William Mansfield, Viscount of.
 Sandor, Mathias.
 Sanger, William Cary. Former Assistant Secretary of War, died in New York City, December 6. He was born at Brooklyn, N. Y., May 21, 1853; served in the Spanish-American war; was Assistant Secretary of War, 1901-03 and a prominent member of important commissions including the war relief board of the National Red Cross.
 Sasulitch (Zasulich), Vera.
 Saunders, Edwards Watts.
 Savage, Sir George Henry.
 Schaefer, William Christ.
 Schelling, Ernest.
 Scherl, August. Newspaper proprietor, died in Berlin, Germany, May 18. He was born in 1849.
 Schindel, S(amuel) John Bayard.
 Schmidt, Arthur P.
 Schnabel, Charles J. Lawyer, died in 1921. He was born at Pittsburg, Pa., Aug. 17, 1867; and after a common school education graduated in law at the University of Oregon in 1891, after which he was admitted to the Oregon bar. He was the president of the Schnabel Investment Company.
 Scofield, Cyrrus Ingerson.
 Scully, Thomas J.
 Sedgwick, William Thompson.
 Servièras, Armand.
 Sevcik, Otakar.
 Sévèrac, Déodat de.
 Sheppard, Edgar. British clergyman, died in London, August 30. After 1907 he was canon of St. George's Chapel, Windsor Castle. He was born Aug. 10, 1845, was chaplain-in-ordinary to Queen Victoria and King Edward and published volumes on the royal palaces and a *Life of the Duke of Cambridge*.
 Shrewsbury, Earl of Charles Henry.

Sifton, Arthur Lewis. Canadian official, died at Ottawa, January 21. He was appointed Secretary of State in 1920. He was born Oct. 28, 1858, educated at Victoria University, Chief justice of the Northwest Territories, 1903-05, and held successively several cabinet offices after 1910.

Skiff, Frederick James Volney.
 Sleicher, John Albert.
 Smith, Frederick H.
 Smith, Jeremiah.
 Smith, Milton H.
 Smyth, Julian Kennedy.
 Somers, Orlando Allen. Soldier, died at Kokomo, Ind., June 9. He was born at Middletown, Ind., Jan. 24, 1843, served during the Civil War and was prominent in the G. A. R. and other veteran organizations. He was member of the Indiana legislature, 1898-1900.
 Sonnino, Baron Sydney.
 Spofford, Harriet Prescott.
 Spronck, Maurice.
 Stamm-Rogers, Madame Estelle. Operatic singer, died, September 13. She was born in 1886 and sang contralto parts.

Stanchfield, John Barry.
 Stein, Leo.
 Stephen, George (Lord Mount Stephen).
 Stephens, David Stubert.
 Stevenson, Sara Yorke (Mrs. Cornelius Stevenson).
 Stoddart, Joseph M. Editor and publisher, died February 26. He was born in 1846 and was well known as a publisher in Philadelphia.
 Stone, Winthrop Ellsworth.
 Storey, John. Prime Minister of New South Wales, died October 5.

Story, Douglas.
 Stover, Martin Luther. Judge, died at Albany, N. Y., June 7. He was born at Waterloo, N. Y., Oct. 19, 1845; served in a Ohio regiment in the Civil War; was admitted to the bar in 1870 and practiced at Amsterdam, N. Y. till 1892 and in New York City after 1906. He was justice of the New York supreme court, 1891-1905.

Stowell, Calvin Llewellyn.
 Strang, William.
 Straus, Richard.
 Strong, Augustus Hopkins.
 Tagliapietra, Giovanni.
 Talaat, Pasha. Former Grand Vizier of Turkey, assassinated in Berlin, March 15, by an Armenian student who had been aroused by the accusation of the Armenians that Talaat was responsible for the massacres. The assassin attacked him on the street and, firing point blank, killed him immediately.

Taussig, Edward David.
 Taylor, Bert Leston.
 Taylor, Charles Henry.
 Taylor, F(rank) Walter.
 Taylor, Samuel Mitchell.
 Thach, Dr. C. C. Died October 3. He was for many years President of the Alabama Polytechnic Institute.
 Thayer, Abbott Handerson.
 Thoma, Ludwig. German author, died, August 26. He wrote humorous verse, fiction and plays, chiefly founded on Bavarian life.

Thomas, Earl Denison.
 Thompson, George Wallace.
 Townsend, James Bliss.
 Trabert, Wilhelm. Ex-director Zentralanstalt für Meteorologie und Geodynamik, Vienna, and professor of cosmical physics at the University of Vienna, died, February 24.

Tredwell, Daniel M.
 Troels-lund, Troels Frederik.
 Tucker, John Francis.
 Tustin, Ernest Leigh.
 Vann, Irving Goodwin.
 Van Syckel, Bennett.
 Varady, Rosal.
 Vasof, Ivan.
 Villagas y Decordero, José.
 Virgil, Almon K. Died, October 15 at St. Petersburg, Fla.
 Vogl, Therese. Died in September at Trutsing on Lake Starnberg.

Wade, James Franklin.
 Wallace, John Finley.
 Walsh, William J.
 Warfield, Benjamin Breckinridge.
 Warrington, John W. Judge, died at Cincinnati, O., May 26. He was born in Ohio in 1846 and was presiding judge of circuit court of appeals after 1911.

Watson, Henry Brereton Marriott.
 Watterson, Henry.
 Watts, Ethelbert.
 Webster, Harrie.
 Wedmore, Sir Frederick.
 Weed, Samuel Richards.
 Wekerle, Alexander. Hungarian cabinet officer, died at Budapest, August 27. He was five times Prime Minister of Hungary; born in 1848.

Weelborn, Olin. Judge, died, December 6. He was born in 1849.

Wendell, Barrett.

West, Sir Algernon. British civil official, died, March 21. He was born in 1832.

Wetmore, George Peabody.

White, Alfred Treadway.

White Edward Douglass.

Whitney, Mary Watson.

Whitney, William Flake. Anatomist, died, March 4.

Whittlesey, Charles W.

Whyte, Alexander.

Wilcox, Sidney Freeman.

Williams, William Elsa. Former Congressman from Illinois, died at Pittsfield, Ill., September 13. He was born, May 5, 1857; educated at Jacksonville, Ill.; and admitted to the bar in 1880. He was a member of Congress in 1889-1901 and 1913-1917.

Wilson, Sir Arthur Knyvet.

Wolliston, Sir Harry.

Woodhull, Alfred Alexander. Army surgeon with rank of brigadier-general, died, October 18. He was well-known as writer and lecturer on hygiene.

Woodhull, Maxwell Van Zant.

Wotherspoon, William Wallace.

Wright, George Frederick.

Wrightson, Sir Thomas.

Wurtemberg, William, former King of. Died, October 2. He was born in 1847.

Yarger, Henry Lee.

Young, John Philip.

Young, Odus Graham.

Zach, Max Wilhelm.

Zahn, John Augustine.

Zelenaki, Ladislav.

Ziel, Ernst. German editor of the Gartenlaube, died in 1921.

NEGRI SEMBILAN. A federation of nine divisions composing a state in the Malay Federated States (q. v.).

NEGRO FARMERS. See AGRICULTURE and AGRICULTURAL EXTENSION WORK.

NEPHRITIS. It has confidently been anticipated that the number and percentage of deaths from nephritis would be favorably affected by the enforcement of the XVIII Amendment. Perhaps it is too soon for improvement to be felt but the fact remains that the death rate from Bright's disease and nephritis as a whole increased during 1920 in place of diminishing. In the registration area of continental United States the number of deaths from this cause in 1919 was 75,005 and in 1920 the total had increased to 78,192. The number per 100,000 population was 88.1 in 1919 and 89.4 in 1920. It was formerly believed that nephritis was set up by direct contact of toxic substances eliminated by the urine. This mechanism can explain but few of these cases, chiefly poisoning with sublimate and oxalic acid and perhaps the cases which develop in pregnancy. Usually the kidneys are the seat of a true infection secondary to some local process such as tonsillitis. The action of alcohol in nephritis is therefore indirect and due to weakening of the defensive forces of the organism. From another angle the slightly demoralizing action of alcohol, enough for example to make a man careless about exposure, has no doubt increased the number of cases which follow wetting and chilling the surface. But removal of alcohol as one of the causal factors does not mean that the disease cannot develop in its absence. Nor is nephritis rare in callings which interdict the use of spirits, for many of the clergy die of it when a certain age period is reached just as they die of heart disease, apoplexy, and the rest of the great degenerative maladies of advanced life which are somehow the result of material civilisation.

NETHERLANDS, THE, or HOLLAND. A kingdom of Central Europe on the North sea in N.

latitude 50° 46' and 53° 34' and in E. longitude 3° 22' and 7°, consisting of eleven provinces. Capital, The Hague.

AREA, POPULATION, ETC. Total area, exclusive of water, 12,582 square miles; population, Dec. 31, 1914, 6,339,705; Dec. 31, 1919, 6,831,231, of whom 3,401,348 were males and 3,429,883, females; estimated in December, 1920, 6,841,155. The area and population by provinces and density per square mile, according to the *Statesman's Year Book* of 1921, were as follows:

Provinces	Area: sq. miles (1809)	Population		Per sq. mile, 1919
		Dec. 31, 1914	Dec. 31 1919,	
North Brabant.....	1,920	670,030	729,011	379
Guelders.....	1,939	681,824	726,390	374
South Holland.....	1,131	1,537,419	1,664,284	1,470
North Holland.....	1,066	1,202,652	1,288,826	1,209
Zealand.....	707	239,676	246,882	349
Utrecht.....	525	307,547	335,461	640
Friesland.....	1,243	372,625	385,362	310
Overijssel.....	1,295	410,826	435,047	336
Groningen.....	881	345,649	363,077	412
Drenthe.....	1,028	188,775	206,879	201
Limburg.....	847	382,682	450,012	531
Total.....	12,582	6,339,705	6,831,231	542

The total area in 1909, including gulfs, bays, and interior waters, in 1909 was 15,760 square miles. About 41 per cent of the population are gathered in the principal towns. The emigration, which has been mostly to North America, was 2439 in 1919. In that year the total births were 164,447; deaths, 89,646; marriages, 58,270. The cities with a population of over 60,000 on Dec. 31, 1919, were as follows: Amsterdam, 647,120; Rotterdam, 506,067; The Hague, 359,610; Utrecht, 138,334; Groningen, 89,030; Haarlem, 77,302; Arnhem, 71,002; Leyden, 61,408; Nimeguen, 66,833; Tilburg, 61,557. Government educational statistics for 1918-19 were as follows: 4 public universities with 352 teachers and 5201 students; 1 technical university with 81 teachers and 1979 students; elementary public schools, 3424, with 19,757 teachers and 620,737 pupils; private elementary schools, 2466, with 14,795 teachers and 443,258 pupils; public infant schools, 208, with 1672 teachers (1917-18) and 36,648 pupils; private infant schools, 1147, with 3452 teachers (1917-18) and 113,289 pupils; middle class schools, 139, with 2304 teachers and 23,084 pupils; schools for the working-people, 525, with 4333 teachers and 53,996 pupils; classical public schools, 34, with 554 teachers and 3515 pupils. There were also, a navigation school, a high school of commerce, a private university, etc.

PRODUCTION. In 1919 the cultivated land and land under forests had a total area of 2,461,112 hectares (1 hectare equals 2.47 acres). The acreage under the principal crops in 1920 was as follows: Potatoes, 426,092; oats, 397,410; winter rye, 494,355; sugar beets, 158,670; winter wheat, 138,957. In spite of the drought the latest crop returns from the Netherlands indicated that the 1921 production of grains would be the heaviest for many years. The crop estimates for the leading grains were: Wheat, 236,400 metric tons against 177,300 for 1920; rye, 422,800 metric tons against 338,200; and oats 309,000 metric tons against 285,200. The hay crop also was reported as very good. The cost of production of farm crops steadily increased after the war and

during 1920 the situation was still unsatisfactory. There was a considerable development of the flour-milling industry during the war and its activity continued during 1920. The general depression in all branches of industry were especially marked in the fisheries, the catch in 1920 being 706,996 barrels as compared with 897,296 barrels in 1919. The income from the 1920 catch was \$7,200,000 as compared with \$12,800,000 in 1919. On Oct. 24, 1920, a law went into effect establishing forty-five hours a week, that is to say the eight-hour day with a half holiday on Saturday, as the maximum, but its application to the engineering trades was postponed for two years.

ECONOMIC CONDITIONS. Prices and the cost of living in the Netherlands showed a slow decrease after 1918. On the basis of 100 in 1913 the average price index figure for food was given as 287 in 1919, 267 in 1920, and for July, 1921, as 177. A retail price index figure covering 29 articles had declined up to July, 1921, to 168 from the 1920 average of 258.

COMMERCE. The total imports (not including the transit trade) were returned as having a value of \$1,122,490,600 as compared with \$1,318,434,000 in the previous year (including the transit trade). The total exports of the country reached the equivalent in guilders of \$582,837,800 (not including the transit trade), as compared with \$692,688,700, which included the transit trade, in 1919. No returns of the value of this transit trade had been made in the Dutch statistics but commercial authorities calculated that it represented about 22 per cent of the total imports and exports. The total value of the import and export trade, including the transit trade, therefore, may be fairly returned as \$2,186,318,400 as compared with a total turnover in 1919 of \$2,011,122,700 and of only \$411,917,800 in 1918, when the influence of war was still acutely felt.

The exports for the first six months of 1921 were 727,914,415 guilders, and the imports were 1,163,226,172 guilders, a decrease in each case for the corresponding period of 1920.

FINANCE. The deficit for the year 1921 was estimated at 227,716,400 guilders; and estimates for 1922 showed total expenditures of approximately 854,570,000 guilders, and revenue of 606,590,000 guilders, in consequence of which the total deficit would amount to almost 250,000,000 guilders. The excess of expenditure in these budgets was due to the large outlay for old-age pensions and for aid to the unemployed, under recently enacted social legislation. The total funded debt of the Netherlands for the year 1920, the last for which statistics were available amounted to 2,182,889,000 guilders, practically all internal on which the interest would amount to about 101,000,000 guilders annually. The total floating debt at the end of 1920 was estimated at 430,000,000 guilders. The banknote circulation of the Bank of Netherlands showed a steady increase after 1913, when it amounted to 334,000,000 guilders, up to January, 1921, when it reached its highest point of 1,074,000,000 guilders. After that a slow decrease took place, and the total paper circulation in September, 1921, amounted to 996,000,000 guilders. Likewise, the total gold reserve in the Bank of Netherlands showed an enormous increase since before the

war. From 154,000,000 guilders in 1913, it reached 712,000,000 guilders in the middle of 1918; only a small decrease took place after that, and the figures for September showed a gold reserve in the Bank of Netherlands of 606,000,000 guilders. The Dutch guilder suffered considerably less in depreciation than the currency of other European countries, as its value in the autumn was 35.41 cents to the guilder, compared with its normal value of 40.2 cents. The lowest point was reached in November, 1920, the guilder being quoted at 29.25 cents in New York. This sudden decline was believed to have been caused by the drop of the German mark, since it occurred shortly after the transfer of large German-mark credits to the Netherlands in exchange for Dutch-guilder credits which the Germans were using for the purchase of goods in other countries. This temporary depression gave place shortly to an increase, and in May, 1921, the guilder was quoted at 39.29 cents (almost its par value). The Chamber passed unanimously on December 29, the government bill authorizing the negotiation of a loan of \$100,000,000 in the United States to be used for the benefit of the Dutch East Indies.

SHIPPING. Ships entered in 1920 numbered 11,114 with a tonnage of 11,350,436. Dutch shipping suffered less than might have been expected from the war, chiefly because of the fact that most of the Dutch shipping is engaged in regular service. Naval construction went on regularly during the year, and 116 ships with a tonnage of 565,356 were under construction.

RAILWAYS. The railways are under private ownership. The two principal lines in 1919 had a length of 2377 miles. In January, 1920, a commission was appointed to investigate the desirability of electrification of all railways in Holland. During 1920 its report was prepared and it was stated that it not only favored a scheme of general electrification but recommended the use of 1500 volts direct current. It further recommended that the electrification of the railways be accomplished in connection with the proposed unification of electric light and power service throughout the country. Inasmuch as large capital expenditures were involved, there was no indication, however, that this work would be undertaken in the near future.

DEFENSE. The peace strength of the army was placed in 1920 at 7961 officers and 262,304 men. In the reserves there were 156,000 trained men and 250,000 untrained men available for mobilization. According to law every Dutch citizen is liable to serve in the army or navy between the ages of 19 and 40, but actual service is determined by lot. The maximum annual contingent is 25,000, including 600 for sea service. At the beginning of 1921 the fleet consisted of: 3 coast defense ships with a tonnage, respectively, of 5080, 5300, 6530; and 4 cruisers with a tonnage, respectively, of 3,900, 4030, 7050, 7050.

GOVERNMENT. Executive power is vested in the sovereign (Wilhelmina Helena Pauline Maria, born August 31, 1880); and legislative power, conjointly in the sovereign and parliament or States-General, the latter body consisting of two chambers, namely, the upper or first chamber with 50 members, elected by the states; and the lower or second chamber with 100 deputies, elected directly. The ministry in 1921 was as

follows: Prime Minister and Minister of the Interior, Dr. Ch. J. M. Ruys de Beerenbrouck; Foreign Affairs, Dr. H. A. van Karnebeek; Navy, Captain van Dijk (temp.); War, Captain van Dijk; Agriculture, H. A. van Ysselsteyn; Colonies, Mr. S. de Graaff; Education, Arts and Science, Dr. Th. de Visser; Finance, Jonkheer de Geer; Public Works, A. A. H. W. König; Justice, Dr. Th. Heemkerk; Labor, Dr. Aalberse.

HISTORY. The Dutch parliament was reconvened September 20. The address from the throne was interrupted by shouts from anti-militarist members demanding that a certain prisoner who had been arrested for refusal to perform military service should be released. A feature of the Queen's address was the advocacy of an increase in the strength of the fleet for the defense of the Dutch East Indies, and another point in it was the approval of a proposed law for the exemption of conscientious objectors. A bill for the building of a new East Indian fleet was passed by the Indian Council.

NEVADA. POPULATION. According to the report of the census of 1920, there were 77,407 residents in the State, Jan. 1, 1920, as compared with 81,875 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Barley.....	1921	6,000	187,000	\$150,000
	1920	5,000	150,000	248,000
Wheat.....	1921	21,000	493,000	641,000
	1920	19,000	424,000	763,000
Hay.....	1921	358,000	1,672,000	6,048,000
	1920	348,000	1,577,000	8,176,000
Potatoes.....	1921	4,000	592,000	710,000
		4,000	540,000	842,000

¹ Tons.

MINERAL PRODUCTION. The value of the gold, silver, copper, and lead mined in Nevada decreased from \$23,879,512 in 1920 to about \$12,310,000 in 1921, according to preliminary figures of the United States Geological Survey, Department of the Interior. The decrease was general, but the output of copper and lead was unusually small, as a result of the poor market and lower prices for these metals. No zinc ore was marketed. The output of gold in Nevada decreased from \$3,566,728 in 1920 to about \$3,340,000 in 1921. The output of gold from the Tonopah district decreased from \$1,056,986 in 1920 to about \$982,000 in 1921, on account of a labor strike which interrupted operations from April to August.

The mine production of silver decreased in quantity from 7,745,093 ounces in 1920 to about 6,681,000 ounces in 1921, and in value from \$8,442,000 to about \$6,655,000. The large mines of the Tonopah district produced about 4,581,000 ounces of silver in 1921, as against 4,816,055 ounces in 1920. The mine output of copper decreased in quantity from 50,559,763 pounds in 1920 to about 15,515,000 pounds in 1921, and in value from \$9,302,996 to about \$1,956,000. The mine output of lead decreased in quantity from 21,263,700 pounds in 1920 to about 7,803,000 pounds in 1921, and in value from \$1,701,096 to about \$359,000.

No zinc ore was mined in Nevada in 1921, though the production of zinc was 10,698,040 pounds in 1920.

LEGISLATION. Among the measures passed at the legislative session of 1921, may be mentioned: Provision for prophylactic treatment of the eyes of the newly born; provision for a State budget; creation of town-planning commissions for incorporated cities and towns; provision for a standardized testing and weighing of dairy products; declaring oil pipe lines to be common carriers; prohibition of advertisement, manufacture or sale of cures for venereal diseases and sexual disorders; provision for the teaching of thrift in the public schools.

OFFICERS. Governor, Emmet D. Boyle; Lieutenant-Governor, Maurice J. Sullivan; Secretary of State, George Brodigan; Controller, Geo. A. Cole; Treasurer, Ed. Malley; Attorney-General, Leonard B. Fowler; Superintendent of Public Instruction, W. J. Hunting.

JUDICIARY. Supreme Court: Chief Justice, J. A. Sanders; Associate Justices, Edward A. Ducker and Ben. W. Coleman.

NEVADA, UNIVERSITY OF. A co-educational State institution for higher education at Reno, Nev.; founded in 1874. The student enrollment for the fall of 1921 was 635 of whom 330 were in the College of Arts and Sciences, 107 in the School of Mechanical and Electrical Engineering. The faculty numbered 60, and there were 35,500 bound volumes in the library. President, Walter E. Clarke, Ph.D., LL.D.

NEWARK, N. J. See GARBAGE AND REFUSE DISPOSAL, and MUNICIPAL GOVERNMENT.

NEW BEDFORD, MASS. See GARBAGE AND REFUSE DISPOSAL and MUNICIPAL GOVERNMENT.

NEW BRUNSWICK. One of the Maritime Provinces of Canada, east of the State of Maine and south of the Province of Quebec. Capital, Fredericton. Area, 27,985 square miles; population (1911), 351,889, showing a density per square mile of 12.61; population (1921) 388,092. The largest city is St. John with a population in 1911 of 42,511, and in 1921 of 46,504. The capital, Fredericton, had a population in 1911 of 7208 and in 1921 of 8081. Spring wheat in 1920 yielded 464,000 bushels; oats, 194,000 bushels; potatoes, 155,700 bushels. It is under a lieutenant-governor, appointed by the governor-general of Canada, and a legislative assembly of 48 members, which at the beginning of 1921 were distributed by party groups as follows: Liberals, 24; Conservatives, 13; Farmers, 9; Labor, 2. Lieutenant-governor at the beginning of 1921, W. Pugsley; Prime Minister, W. E. Foster. See CANADA.

The question of the importation of liquor for personal use was referred to the people, October 10. Only about one-third of the voters went to the polls, but of these a great majority decided against importation. Only two counties and a few of the smaller towns voted "wet."

NEW CALEDONIA. A French colony consisting of the island of New Caledonia, the most southern of the Melanesian Islands, about 850 miles from the coast of Queensland, Australia; and of the following dependencies: Isle of Pines; Wallis Archipelago; Loyalty Islands; Huon Islands; and Futuna and Alofi. The island of New Caledonia has a length of over 248 miles and an average breadth of 31 miles. Area, 7650 square miles; population, 1911, 60,608, of whom 5671 were of convict origin and 28,075, Melanesians and Polynesians. Capital, Nouméa, with a population of about 10,000. By Jan. 1, 1916, the

population of convict origin had decreased to 2680. Imports (1919), £1,000,000; exports, £950,000. The chief imports were: Coal, wine, flour, and rice; and the chief exports: Coffee, mineral, copra, rubber, guano, and preserved meats. The military force in 1921 numbered about 400 Europeans. It is under a governor, aided by a privy council and an elective council-general.

NEWELL, WILLIAM WHITING. American clergyman, died in 1921. He was born at Wappingers Falls, N. Y., August 29, 1868; and educated in theology at Geneva, Switzerland. He was pastor in Minnesota and at St. Louis, Mo., and afterwards secretary of the Congregational Church Building Society at Chicago from 1905 to 1917. He was a specialist in church finance.

NEWFOUNDLAND. An island colony of Great Britain in the northeastern part of the Gulf of St. Lawrence. Area, 42,734 square miles; population (1911), 242,619; estimated, Dec. 31, 1919, 260,922. Labrador, which is dependent on it, has an area of 120,000, and a population in 1919 of 3647. Capital, St. John's, with a population (1918) of 34,045. Other towns with their populations in 1911 are: Harbour Grace, 4277; Bonavista, 3911; Carbonear, 3540. The chief resources are agriculture and the fisheries, and there is considerable mineral wealth. No later figures for production were available than those given in the preceding YEAR BOOK. Of late there has been a large development of the paper and pulp industries. The imports, including bullion and specie, in 1919-20 amounted to £8,331,864; and the exports, to £7,164,935. The chief imports in the order of their value in 1918-19 were: Textiles, hardware, flour, salt pork, and coal; and the chief exports: Dried cod (which made up by far the greater part), herring, pulp and paper, and cod oil. In 1919-20 the imports from Canada amounted to \$18,767,238; from the United States, \$15,414,067; and from the United Kingdom, \$4,637,074. Of the exports the United Kingdom received \$6,411,967; the United States, \$4,426,142; and Canada, \$2,602,859. In 1919, 732 men and 41 Newfoundland sailing vessels were engaged in the bank cod fishery, a considerable decrease from the preceding year; and the catch in 1919 was valued at \$1,137,240, a decrease of over \$200,000 from the preceding year. In the shore cod fishery, 14,870 small boats of various kinds were employed and 37,550 men. The output was valued at \$19,465,161, an increase of nearly \$4,000,000 over the preceding year. In 1920 the number of seals caught was 33,985, valued at \$159,948, as compared with a catch of 81,293 in 1919. The total attendance at the board schools in 1919 was 50,842. The country is under a governor, assisted by an executive council, a legislative council, and an elected house of assembly with 36 representatives. In 1919 the railway mileage was: 904, government line; and 47, private line. For recent railway and other developments, see preceding YEAR BOOK. Governor at the beginning of 1921, Sir C. A. Harris; Prime Minister, R. A. Squires.

NEW GUINEA. An island of the East Indies, next in size to Australia and Greenland; area, about 310 square miles; population, roughly estimated at a little under 1,000,000; divided under Australian, Dutch, and British control, the former German dominion having ceased during

the war. It is distributed as follows: Western part to 141° E. longitude included in the Dutch East Indies; northeastern part, comprising the former German colony of Kaiser Wilhelmland, assigned to Australia; southeastern part included in the British colony of Papua. See DUTCH EAST INDIES, GERMAN NEW GUINEA, and PAPUA.

NEW HAMPSHIRE. POPULATION. According to the report of the census of 1920, there were 443,083 residents in the State, Jan. 1, 1920, as compared with 430,572 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	25,080	1,325,000	\$994,000
	1920	24,000	1,180,000	1,566,000
Hay.....	1921	462,000	1,438,000	12,184,000
	1920	481,000	1,505,000	12,575,000
Potatoes.....	1921	14,000	2,240,000	3,024,000
	1920	15,000	1,905,000	2,953,000

¹ Tons.

MANUFACTURES. A preliminary statement of the general results of the census of manufactures for the State of New Hampshire was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the factory system. As appears from the accompanying summary there was a consistent increase at the census of 1919, as compared with that for 1914, except that the number of establishments, the number of proprietors and firm members, and primary horsepower, decreased. In the order of their importance from a percentage standpoint, the increases for the several items ranked as follows: Value added by manufacture, 146.3 per cent; salaries, 122.7 per cent; value of products, 121.9 per cent; capital, 109.5 per cent; cost of materials, 107.5 per cent; wages, 96.3 per cent; number of salaried employees, 32.8 per cent; and number of wage earners, 4.8 per cent. The capital invested, as reported in 1919, shows a gain of \$171,689,000, or 109.5 per cent, over that in 1914. The average capital per establishment was approximately \$219,000 in 1919 and \$90,000 in 1914. The cost of materials used in 1919 shows an increase over that for 1914 of \$123,647,000, or 107.5 per cent. The average cost of materials per establishment in 1919 was approximately \$159,000, and in 1914 \$66,000. The value of products in 1919 shows an increase over that in 1914 of \$222,895,000, or 121.9 per cent. The average per establishment in 1919 was approximately \$271,000 and in 1914 \$105,000. The value added by manufacture in 1919 shows an increase over that in 1914 of \$99,248,000, or 146.3 per cent. The value added by manufacture in 1919 formed 41.2 per cent of the total value of products and in 1914, 37.1 per cent. In 1919, as compared with 1914, the number of salaried employees shows an increase of 1436, or 32.8 per cent, while the average number of wage earners increased 3770, or 4.8 per cent. The comparative summary for the State for 1914 and 1919 is shown in the table on page 607.

FINANCE. Balance on hand, Sept. 1, 1920, \$186,733.55; total receipts, Sept. 1, 1920, to June 30, 1921, \$6,287,722.69; total disbursements,

	Census—		Per cent of increase ¹ 1914-19
	1919	1914	
Number of establishments.....	1,497	1,736	-13.8
Persons engaged in manufactures.....	89,909	85,013	5.9
Proprietors and firm members.....	1,426	1,646	-13.4
Salaried employees.....	5,810	4,374	32.8
Wage earners (average number).....	82,763	78,993	4.8
Primary horsepower.....	311,722	344,093	-9.4
Capital.....	\$328,438,000	\$156,749,000	109.5
Services.....	92,882,000	46,524,000	99.6
Salaries.....	13,097,000	5,881,000	122.7
Wages.....	79,785,000	40,643,000	96.3
Materials.....	238,641,000	114,994,000	107.5
Value of products.....	405,739,000	182,844,000	121.9
Value added by manufacture (value of products less cost of materials).....	167,098,000	67,850,000	146.3

¹ A minus sign (—) denotes decrease.

Sept. 1, 1920, to June 30, 1921, \$5,685,414.92; balance on hand, July 1, 1921, \$789,041.32. The net indebtedness, July 1, 1921, was \$2,314,306.76, a decrease of \$726,217.41, during the fiscal year.

EDUCATION. The pupils in the public schools in 1921 numbered 95,481; teachers, 2695. The average annual salary of women elementary teachers was \$884.

CHARITIES AND CORRECTIONS. The State institutions include: Soldiers' Home, Tilton; Sanatorium, Benton; School for Feeble-minded, Laconia; State Hospital, Concord; Industrial School, Manchester; State Workshop for the Blind, West Manchester. The State Prison is at Concord.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Regulation of the practice of chiropractics; provision of further safeguards against forest fires; taxing the transfer at death of personal property of non-residents; relating to the marriage of persons having syphilis or gonorrhea; provision for the protection of maternity and infancy; regulation and limitation of the investments of savings banks.

OFFICERS. Governor, Albert O. Brown; Secretary of State, Edwin C. Bean; Treasurer, John W. Plummer; Attorney-General, Oscar S. Young; Commissioner of Education, Ernest W. Butterfield.

JUDICIARY. Supreme Court: Chief Justice, Frank N. Parsons; Associate Justices: Reuben E. Walker, John E. Young, Robert J. Peaslee, William A. Plummer.

NEW HAMPSHIRE STATE COLLEGE. A co-educational State institution of the higher learning at Durham, N. H.; founded in 1866. The enrollment for the fall of 1921 was 905, of whom 699 were men and 206 women. The faculty contained 85 members of whom 9 were added in the course of the year. Aside from the State appropriations there were received \$35,000 income. The library contained 42,000 volumes. President, Ralph Dorn Hetzel, LL.D.

NEW HEBRIDES. A group of islands in Melanesia under the joint administration of the French and British, including the islands of Espiritu Santo, Mallicolo, Efate or Sandwich, Epi, Tanna, Erromanga, Tutana, and Aneityum. Area, 5100 square miles; total population about 70,000, including at the end of 1905, 225 British and 417 French. Later estimates vary, one in 1918 giving the British 262 and the French 664, a still later one giving the British 300 and the French 400; and a French estimate in 1921

giving the French 997 and the British 258. The seat of government is Vila on the island of Efate. The natives are uncivilized but missionary work has been long carried on among them by French Catholic and many Presbyterian mission schools. Large areas of land are in the possession of the European settlers. The products include millet, corn, coffee, cocoa, cotton, and bananas. Exports, 1918-19 about £150,000; imports, about £120,000. The trade is largely with Sydney, New South Wales, and New Caledonia. There is regular steamship communication with Australia and other Pacific islands by French and British lines. The status of the islands has been the subject of much discussion of recent years. In October, 1906, an Anglo-French convention was ratified which placed the islands under a condominium or joint system of French and British control. This worked badly according to the reports and various proposals were made for its termination by disposing of the islands to one or the other of the controlling powers. In April, 1914, certain improvements were made in the system but, the war arising, they were not put into effect. Both the French and the British were demanding a solution at the close of the war. The question came up again in 1921, first, at the Conference of the Dominions in London in June, when the prime minister of New Zealand asked that the question of exchanging the rights of France for the cession of certain other territories be considered; and second, on November 4, when Mr. Hughes, prime minister of Australia, declared in parliament that the Australian government had received an offer from a French company for a sale of a large portion of the territory. Various French writers took alarm at these proposals and emphasized the importance to French interests in the Pacific of retaining the islands. Their abandonment, in the opinion of these writers, would injure the French colony of New Caledonia and might be the first step in the dissolution of French power in the Pacific. The French minister of the colonies on hearing of the offer made to Australia declared that he knew nothing about it and would refuse such an offer if it ever was made. The French company in question, however, contended that the offer was a private affair over which the French government had no control. According to the French arguments the islands ought in all justice to be attached to France on account of the French superiority in population and in property interests, and because the French colonists of both the New

Hebrides and New Caledonia insistently made this demand. The French claimed that the abandonment of the islands would result in the loss of land valued at over 150,000,000 francs without taking into account the mineral resources. Moreover, it was said that French trade, according to

the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The accompanying table gives a comparative summary of the manufactures of the State in 1919 and 1914.

	Census—		Per cent of increase 1914-19
	1919	1914	
Number of establishments.....	11,062	9,742	13.5
Persons engaged in manufactures.....	603,889	431,003	40.1
Proprietors and firm members.....	10,253	8,342	22.9
Salaried employees.....	84,377	49,056	72.0
Wage earners (average number).....	509,259	373,605	36.3
Primary horsepower.....	1,147,268	703,063	44.7
Capital.....	\$2,835,441,000	\$1,352,382,000	109.7
Services.....	773,001,000	280,984,000	175.1
Salaries.....	171,389,000	69,848,000	145.4
Wages.....	601,612,000	211,136,000	184.9
Materials.....	2,271,521,000	883,464,000	157.1
Value of products.....	3,677,165,000	1,406,633,000	161.4
Value added by manufacture (value of products less cost of materials).....	1,405,644,000	523,169,000	168.7

the latest figures, amounted to nearly 9,000,000 francs as against less than 3,000,000 francs for the English. A court consisting of one French and one English judge and of a president and prosecutor nominated by the King of Spain, had been set up at Port Vila. According to the French there was much complaint of the decisions of this court. It was remote from the people under its jurisdiction and the judges frequently were absent. While the cases brought before it were not particularly important, the cumbrous method of administering justice was an illustration of the difficulties resulting from the present condominium. French writers continued in 1921 as in previous years to point out the necessity of coming to some more practical understanding in regard to the government of the islands. French resident at the beginning of 1921, J. Miramende; British resident, M. King.

NEW JERSEY. POPULATION. According to the report of the census of 1920, there were 3,155,900 residents in the State, Jan. 1, 1920, as compared with 2,537,167 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	241,000	11,327,000	\$6,003,000
	1920	236,000	10,384,000	8,826,000
Oats.....	1921	72,000	1,728,000	778,000
	1920	72,000	2,304,000	1,728,000
Wheat.....	1921	81,000	1,539,000	1,739,000
	1920	74,000	1,184,000	2,427,000
Rye.....	1921	57,000	998,000	1,018,000
	1920	55,000	962,000	1,635,000
Hay.....	1921	323,000	1,424,000	7,492,000
	1920	321,000	1,524,000	14,073,000
Potatoes.....	1921	85,000	9,025,000	12,816,000
	1920	90,000	14,040,000	17,550,000
Sweet potatoes.....	1921	17,000	1,870,000	3,179,000
	1920	16,000	2,288,000	3,548,000
Cranberries.....	1921	10,000	1,179,000	2,506,000
	1920	10,000	1,133,000	1,396,000

¹ Tons.

² Barrels.

MANUFACTURES. The Bureau of the Census reported the general results of the 1920 census of manufactures, covering the year 1919, for the State of New Jersey. The census of manufactures, 1919, like that of 1914, excluded the hand trades,

CHARITIES AND CORRECTIONS. State institutions include: State Hospital, Morris Plains; Institution for Feeble-minded, Vineland; Colonies for Feeble-minded, New Lisbon and Woodbine; Village for Epileptics, Skillman; Home for Boys, Jamesburg; Home for Girls, Trenton; State Hospital, Trenton; Homes for Disabled Soldiers, Kearny and Vineland; New Jersey Reformatory, Rahway; State Prison, Trenton; State Prison Farm, Leesburg; Reformatory for Women, Clinton; Sanatorium for Tuberculous Diseases, Glen Gardner.

LEGISLATION. The law creating a State constabulary was passed over the governor's veto despite the opposition of organized labor. It provided for two bodies of fifty-eight men each for the protection of the rural parts of the State. The lower house ratified the prohibition amendment by a vote of 51 to 4, but the senate refused to ratify it. Representatives of the State and of New York signed on April 30 a port treaty between the two States, approved by the legislature of both States. This gave to the port authority control of the improvement and development of the port of New York, and a new board was established, made up of three representatives from each State. A pension law was passed allowing State employees retirement at sixty years, and requiring employees to contribute to the pension fund at from 3½ per cent to 8 per cent of their salaries according to their age and occupation on entering the service. Among the other measures passed at the legislative session of 1921 may be mentioned: Creating a commission to prepare a building code to apply to all parts of State in which no building code is already in force; abolition of State board of chiropractors and addition of a chiropractor to State board of medical examiners; creation of a legislative committee to investigate the shortage of coal and its causes; amendment in respect to elections doubling membership of political State and county committees and giving women equal representation; bestowal on mothers of equal rights with fathers in the custody of children; repeal of provision of 1920 defining as non-intoxicating beer whose alcoholic content is not over 3½ per cent; prohibiting the granting of marriage licenses to persons with

syphilis, gonorrhea, or chancroid in a communicable form; general revision of motor-vehicle laws and new regulations on the subject; requiring pawnbrokers to make daily reports to the police of goods pledged and amounts loaned; licensing and regulating the real estate business and creating a State real estate commission; provision for referendum on State bond issue of \$14,000,000 for construction and equipment of additional buildings for charitable and correctional institutions; extension to women of equal privileges in the holding of office and employment; provision for the serving of women on juries.

OFFICERS. Governor, Edward I. Edwards; Secretary of State, Thomas F. Martin; Attorney-General, Thomas F. McCran; Treasurer, William T. Read; Controller, Newton A. K. Bugbee; Adjutant-General, Frederick Gilkyson; Commissioner of Education, John Enright.

JUDICIARY. Supreme Court: Chief Justice, William S. Gummere; Justices: Charles W. Parker, James J. Bergen, James F. Minturn, Charles C. Black, Francis J. Swayze, Samuel Kalisch, Frank S. Katzenbach, Jr., Thomas W. Trenchard.

NEW JERUSALEM, CHURCH OF THE. Established in 1787 in London, this denomination is commonly known as the New Church. It derives its teachings from the Sacred Scriptures and writings of Emanuel Swedenborg, who was born in Sweden in 1688 and died in 1772. The founding of the first local organization in the United States dates from 1792. The church functions through its General Convention composed of twelve associations and numerous societies. The first session of the General Convention was held in 1817. The gathering in 1921 was the one-hundredth session and was held in Boston, Mass., June 25-28. Messages were received in the form of addresses from general conferences of the denomination in Great Britain. The church carries on both home and foreign mission work. The year saw the sending of a missionary to the Philippine Islands and the establishment of the first church of the denomination in the islands. In addition missionary work is conducted in Denmark, Switzerland, Czechoslovakia, Austria, Japan, France, and Germany. The formation of a Federation of French-speaking New-Church people was regarded as an important step in 1921. The denomination maintains a theological seminary at Cambridge, the New-Church Institute of Education, a school for girls in Waltham, and Urbana University at Champaign, Ill. Statistics for 1921 showed 101 ministers and a membership of 6523, a slight decrease from 1920. Societies numbered 98 and property was valued at \$1,750,000.

There occurred a split in the denomination in 1891. The new organization took the name of the General Church and differs from the main body mainly in its attitude toward the writings of Swedenborg, which it considers "divinely inspired and thus the very Word of the Lord revealed at His second coming." The latest available statistics for this branch are those of 1916 which reported 15 churches, 733 members, and church property valued at \$55,032. The general headquarters of the New Church are at 134 Bowdoin St., Boston, Mass., where also is published the official organ of the General Convention, *The New Church Messenger*.

NEWKIRK, GARRETT. Physician and dentist, died, April 7. He was born in Calhoun County, Mich., May 3, 1847; graduated at the Rush Medical College in 1868, and studied at the Chicago College of Dental Surgery. He practiced dentistry in Chicago from 1883 to 1900, and afterwards in California. He was dean of the College of Dentistry in the University of Southern California from 1901 to 1906, and president or officer of important dental societies. He wrote: *Rhymes of the States* (1896); and *Aesop's Fables Retold* (1916).

NEW MEXICO. POPULATION. According to the report of the census of 1920, there were 360,350 residents in the State, Jan. 1, 1920, as compared with 327,301 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	290,000	6,409,000	\$5,768,000
	1920	276,000	5,989,000	5,588,000
Oats.....	1921	61,000	1,690,000	811,000
	1920	61,000	1,671,000	1,337,000
Wheat.....	1921	237,000	3,088,000	3,242,000
	1920	196,000	3,564,000	4,993,000
Hay.....	1921	239,000	1,499,000	6,268,000
	1920	234,000	1,488,000	8,101,000
Beans.....	1921	105,000	830,000	2,075,000
	1920	114,000	855,000	2,599,000
Potatoes.....	1921	4,000	296,000	538,000
	1920	4,000	300,000	580,000
Gr. sorghums.....	1921	134,000	3,323,000	1,329,000
	1920	156,000	3,838,000	3,800,000

¹ Tons.

IRRIGATION. The table on page 510 gives a comparative summary of irrigation conditions at the census of 1920 with those of 1910:

MINERAL PRODUCTION. Metal mines in New Mexico, according to the United States Geological Survey, Department of the Interior, produced in 1921, \$184,000 in gold, 671,000 ounces of silver, 500,000 pounds of lead, 14,460,000 pounds of copper, and 20,000 pounds of zinc, as compared with \$480,302 in gold, 768,042 ounces of silver, 2,869,525 pounds of lead, 54,400,691 pounds of copper, and 10,013,580 pounds of zinc in 1920. These figures indicate that during 1921 only ores carrying considerable silver could be mined profitably. The Chino Copper Co., with its large developed ore reserves of copper ore at Santa Rita and large milling plant at Hurley, produced 8,913,405 pounds of copper during the first quarter of 1921, but as there was no improvement in the copper market during the quarter the mines and mill of the company were closed on March 31, 1921. Later shipments brought this company's production for the year up to 9,137,282 pounds of copper as compared with 46,088,609 pounds in 1920. The zinc mines at Hanover continued development work but shipped no ore.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Additional provisions for the protection of game; regulating employment and hours of labor of children; regulation of the practice of chiropractics; creating the office of county flood commissioner and providing for emergency flood districts and their administration; provision for the prevention of forest fires; regulation and control of fraternal benefit societies; prohibition of gambling; provision for equal rights and duties of both parents of minor children; providing for a succession tax;

	1920	1910
Number of all farms.....	29,844	35,676
Approximate land area of state.....	78,401,920	78,401,920
All land in farms.....	24,409,633	11,370,021
Improved land in farms.....	1,717,224	1,467,191
Number of farms irrigated.....	11,390	12,795
Area irrigated.....	538,377	461,718
Area enterprises were capable of irrigating.....	696,119	644,970
Area included in enterprises.....	961,879	1,102,297
Per cent irrigated:		
Number of all farms.....	38.2	35.9
Approximate land area of state.....	0.7	0.6
Land in farms.....	2.2	4.1
Improved land in farms.....	31.4	31.5
Excess of area enterprises were capable of irrigating over area irrigated.....	157,742	183,252
Excess of area included in enterprises over area irrigated.....	423,502	640,579
Area of irrigated land reported as available for settlement.....	66,479	
Capital invested.....	\$18,210,412	\$9,154,887
Average per acre enterprises were capable of irrigating.....	26.10	14.19
Estimated final cost of existing enterprises.....	20,440,646	11,640,091
Average per acre included in enterprises.....	21.25	10.56
Average cost of operation and maintenance per acre.....	2.41	1.36

requiring inspection of certain "securities" offered for sale, and such regulation of the business of those who deal in them as may be necessary to prevent fraud or unfairness; provision of commission government for cities of between 3000 and 10,000 inhabitants; provision for the repression of prostitution; creating a State department of public welfare; regulation and limitation of working hours of women.

OFFICERS. Governor, Merritt C. Mechem; Lieutenant-Governor, William Duckworth; Secretary of State, M. Martinez; Treasurer, C. W. Strong; Auditor, Ed. Safford; Attorney-General, Harry Bowman.

NEW ORLEANS, LA. See GARBAGE AND REFUSE DISPOSAL.

NEW SOUTH WALES. A constituent state of the Commonwealth of Australia; situated in the southeastern part of the continent and bounded by Queensland on the north, Victoria on the south, South Australia on the west and the Pacific on the east. Capital, Sydney, the second largest city in the southern hemisphere, being next to Buenos Aires. Area, inclusive of Lord Howe Island and the Federal Capital Territory, 310,372 square miles; population, estimated June 30, 1920, 2,026,262 of whom 1,021,590 were males and 1,004,672 were females. Education, which is under state control, is compulsory between the ages of seven and fourteen. In 1919 there were 3336 public schools with 288,965 pupils enrolled and 9002 teachers; private schools 681 with 81,061 pupils and 3830 teachers, the majority of these being Roman Catholic schools. On June 30, 1920, there were 5015 miles of railway opened for traffic, and in addition to these lines which are state owned, there were 8 private lines with a mileage of 168. Gold is found throughout the country. Gold production in 1919 was 65,839 oz. valued at £279,666. From the time of the discovery of gold in New South Wales down to and including the year 1919 the production of gold was valued at £62,643,187. In 1920 the external commerce was as follows: Imports over-sea, £44,690,204; exports, over-sea, £54,663,385. The budget for 1920 was as follows: Revenue, £28,650,496; Expenditures, £30,210,013. The executive power is in a governor assisted by a cabinet and the legislative power in a parliament of two houses, namely, the Legislative Council and the

Legislative Assembly. Governor at the beginning of 1921, Sir Walter Edward Davidson; Prime Minister, John Storey. See AUSTRALIA.

The railways of New South Wales, Australia, were not on a paying basis in 1920, and suffered a deficit of some \$2,600,000. Practically all of this deficit was said to be chargeable to interest on capital used for in additions and betterments, which were not in sufficient use to produce revenue. In many cases these undertakings had not been finished and it was estimated that about \$15,000,000 would be required to complete projects begun. The expenditure of about half of this sum was contemplated in the near future, and it was proposed to give large orders for rails, bridge steel, and other construction materials.

NEWTON, SIR ALFRED JAMES. British shipowner and civil official, died in London, June 20. He was born at Hull, Oct. 19, 1849, and when about nineteen years of age began as a yeast merchant at Burton. He built up a considerable export trade with France and Belgium, and his business was finally merged in a large commercial establishment at Southwark. In 1880 he founded with some of his relatives the shipowning firm of Newton Brothers and Company, whose steamships carried troops to the Egyptian War. He left this business in 1886 and three years later was appointed to office in the London administration. In 1899 he was elected Lord Mayor. Meanwhile he had become interested in various important companies and upon his election as mayor, he was criticised by financial writers in the press for methods alleged to have been employed by him in the acquisition and management of the Industrial Contract Corporation. The Lord Mayor immediately took steps to vindicate his conduct and in the opinion of many he succeeded in doing so. During his administration many recruits were gathered for the South African war, and during the late war he was active in raising large funds for the sick and wounded and other sufferers.

NEW YORK. POPULATION. According to the report of the census of 1920, there were 10,385,227 residents in the State, Jan. 1, 1920, as compared with 9,113,614 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	798,000	36,708,000	\$24,594,000
	1920	767,000	30,680,000	35,589,000
Buckwheat.....	1921	193,000	4,150,000	3,444,000
	1920	215,000	4,300,000	6,020,000
Oats.....	1921	1,038,000	24,912,000	11,709,000
	1920	1,059,000	40,772,000	27,317,000
Barley.....	1921	158,000	3,318,000	2,057,000
	1920	170,000	4,930,000	4,881,000
Wheat.....	1921	455,000	8,747,000	9,447,000
	1920	467,000	10,203,000	17,856,000
Rye.....	1921	52,000	806,000	798,000
	1920	71,000	1,242,000	1,962,000
Hay.....	1921	4,960,000	14,960,000	89,085,000
	1920	4,960,000	16,196,000	145,794,000
Beans.....	1921	67,000	1,072,000	3,182,000
	1920	54,000	756,000	2,646,000
Potatoes.....	1921	330,000	33,990,000	36,708,000
	1920	325,000	40,625,000	47,938,000
Hops.....	1921	1,000	1,680,000	232,000
	1920	1,000	1,950,000	570,000

¹ Tons.² Pounds.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of New York was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The accompanying table summarizes the results of the census of 1919 with the corresponding figures for 1914.

FINANCE. According to the controller's report at the close of the fiscal year 1921 (June 30), the total State debt was \$267,784,000, which was an increase of \$28,923,983 over the total at the close of the previous year, these figures being due principally to the sale of bonds during the year for the construction of canals, highways, and the acquisition of forest preserve land. The net State debt had increased only about \$19,188,170. The total revenue receipts available for general budget purposes were \$147,384,168 as compared with \$115,591,607 of the previous year. The total expenditures from the Treasury fund were \$182,038,511 of which \$58,160,187 represented salaries and the expenses of the general departments. The receipts from all sources for the year ending June 30 amounted to \$231,148,666. The general budget appropriations of the legislature for the year ending June 30 amounted to \$145,219,907 and the total general budget expenditures for the year were \$135,820,689. The legislature of 1921 made general budget appropriations for the year ending June 30, 1922, amounting to \$145,798,093, including an appropriation of \$7,964,748 as advances to be made on account of construction of Federal Rural Postroads, which amount was to be returned by the Federal government. The statement at foot of page presents a summary of the finances of the State during the year:

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	49,367	48,203	2.4
Persons engaged in manufactures.....	1,527,081	1,289,098	18.5
Proprietors and firm members.....	49,505	48,636	1.8
Salaried employees.....	247,781	182,605	35.7
Wage earners (average number).....	1,229,815	1,057,857	16.3
Primary horsepower.....	2,639,001	2,356,655	12.0
Capital.....	\$6,033,828,000	\$3,334,278,000	81.0
Services.....	1,885,898,000	873,771,000	115.8
Salaries.....	514,268,000	242,729,000	111.9
Wages.....	1,371,630,000	631,042,000	117.4
Materials.....	4,947,845,000	2,108,607,000	134.6
Value of products.....	8,874,638,000	3,814,661,000	132.6
Value added by manufacture (value of products less cost of materials).....	3,926,793,000	1,706,054,000	130.2

CONDENSED GENERAL BALANCE SHEET OF THE STATE OF NEW YORK

Resources		July 1, 1921	July 1, 1920
Cash in treasury.....		\$ 93,765,708.41	\$ 44,655,553.01
Investments at par value.....		72,609,335.19	76,506,631.94
Capitalized expenditures for land and construction.....		250,475,693.63	237,205,150.33
Expenditures subject to reimbursement.....		50,605.54	8,543.73
Revenue required to meet the general budget appropriations in force.....		148,873,418.35	139,856,463.46
Total resources.....		\$565,774,761.12	\$498,232,242.47
Liabilities			
State debt:			
Funded debt.....		\$267,729,000.00	\$236,024,000.00
Temporary debt.....		55,000.00	2,836,017.33
Total state debt.....		\$267,784,000.00	\$238,860,017.33
Reserves:			
Sinking funds.....		\$ 79,235,287.62	\$ 69,499,475.22
Trust funds.....		10,803,901.04	10,760,538.32
General budget appropriations in force.....		149,774,160.07	141,213,382.67
Appropriated special funds for construction.....		13,602,053.29	5,350,210.72
Unappropriated special funds for construction.....		862,281.25	855,208.58
Federal Rural Post Road Fund (revolving fund).....		100,000.00	100,000.00
Total reserves.....		\$254,377,683.27	\$227,778,815.51
Surplus for general purposes.....		43,613,077.85	31,593,409.63
Total liabilities.....		\$565,774,761.12	\$498,232,242.47

EDUCATION. The latest available figures for the State's educational institutions were as follows:

ATTENDANCE AT SCHOOLS		1919-20
Public schools.....	1,700,106	
Special schools.....	4,332	
Academies.....	59,211	
Normal schools.....	7,370	
Teachers training classes and schools.....	2,227	
Universities, colleges, professional schools and other higher institutions.....	62,129	
Private schools of all grades, exclusive of academies as enumerated above, as shown by reports and best available information..... (estimated)	275,000	
Indian schools.....	750	
Evening schools.....	96,736	
Evening vocational schools.....	41,414	
Trades and vocational schools.....	19,453	
Continuation schools.....	15,383	
Total.....	2,284,111	

NUMBER OF TEACHERS		
Public elementary schools.....	46,216	
Special elementary schools.....	41	
Public high schools.....	7,374	
Special high schools.....	138	
Academies.....	2,571	
Normal schools.....	371	
Teachers training classes and schools.....	163	
Universities, colleges, professional schools and other higher institutions.....	6,232	
Indian schools.....	36	
Evening schools.....	2,675	
Evening vocational schools.....	760	
Trades and vocational schools.....	663	
Total.....	67,240	

CHARITIES AND CORRECTIONS. The accompanying table shows the location and number of inmates in the State asylums and reformatories in 1920:

Name	1920
Western House of Refuge for Women, Albion.....	180
State School for the Blind, Batavia.....	167
State Soldiers and Sailors' Home, Bath.....	815
State Reformatory, Elmira.....	777
Eastern Reformatory, Napanoch.....	205
State Training School for Girls, Hudson.....	357
State Custod. Asyl. for Feeble-Minded Women, Newark	978
House of Refuge, Randall's Island.....	550
State Custodial Asylum, Rome.....	1,969
State Agric. and Indust. School, Industry.....	728
State Institution for Feeble-Minded Children, Syracuse	648
Thomas Indian School, Iroquois.....	187
Craig Colony for Epileptics, Sonyea.....	1,403
State Woman's Relief Corps Home, Oxford.....	141
State Reformatory for Women, Bedford.....	248
State Hos. Care Crippled & Def. Child., W. Haverstraw..	165
State Hos. Treat. of Incep. Tuberc., Raybrook.....	317
Letchworth Village, Thiells.....	811
Total.....	10,640

The accompanying table gives the location and number of patients in the State hospitals for the insane in 1920:

Hospitals	1920
Utica.....	1,329
Willard.....	2,584
Hudson River.....	3,562
Middletown.....	2,177
Buffalo.....	2,344
Binghamton.....	2,738
St. Lawrence.....	2,282
Rochester.....	1,772
Gowanda.....	1,274
Mohanic.....	.....
Kings Park.....	4,797
Long Island.....	1,313
Manhattan.....	6,045
Central Slip.....	5,577
Total.....	38,294

The institutions for the deaf and dumb are subsidized by the State and counties, but the building and grounds are as a rule owned by private corporations which appoint their directors.

POLITICS AND GOVERNMENT. Discontent with the administration of New York City's Mayor, Mr. John F. Hylan, who had been elected over Mr. John Purroy Mitchel four years before, led to a union of Republicans, Independent Democrats and various organizations for civic improvement, which prepared a ticket headed by Major Henry H. Curran for Mayor. After the election of Mayor Hylan, Tammany Hall had remained in complete control of the machinery of the Democratic party. There was a long and violent campaign in the course of which the press as on many previous occasions was lined up against the Tammany administration. A large volume of detailed criticism was produced and a vigorous campaign was conducted although not much hope of success was expressed. The result was the reelection of Mayor Hylan for a second term with a plurality of over 400,000. The Socialists were of little importance in the election. As to State affairs the chief feature was a vote on the constitutional amendment proposing preference to ex-service men in civil service appointments. This though well intentioned was believed to be unsound in principle and was defeated. Another matter referred to the people was an amendment for imposing a literacy test for voting, including the requirement that the voter should know the English language. This was carried not only throughout the State but even in boroughs of New York City where foreign populations predominate.

On August 31 the New York Court of Appeals ruled that the Bonus Act was unconstitutional. This act provided for a bond issue of \$45,000,000 for the payment of the soldiers' bonus. Its constitutionality had been upheld by a lower court. New York was the first State to declare such an act unconstitutional.

LEGISLATION. The legislative programme of the governor was almost completely embodied in laws. The legislative record included the following measures: A law reorganizing the State public service commission and the creating for New York City of a transit commission of three members with complete power over local transportation; a provision for the investigation of the administration of New York City, and for a charter commission to revise the city charter; repeal of Presidential primaries; the abolition of the direct primary for United States Senators, State supreme court judges, and officers elected by the State at large; candidates for such offices in the future to be named by party conventions, consisting of delegates nominated by petition and elected two months before the regular election; the direct primary to remain in force for local offices; a law providing for a board of estimate and control which was to have in charge the making of the budget; providing for the enforcement of the prohibition and the Volstead act by the local authorities; amendment making bribing of baseball players a felony punishable by imprisonment of from one to five years or a fine of not more than \$10,000; pertaining to permits and limitation of hours in the employment of children in street trades; placing administration of the income tax law under the authority of the State tax commis-

sioner; providing for investigation by the attorney-general of fraudulent practices in respect to stocks, bonds, and other securities; reorganizing the department of labor and provisions in respect to the employment of women and children, and the hours of labor; providing for the establishment of county libraries; authorizing municipalities to appropriate money for pre-natal maternity care; abolishing the military training commission; provision for the protection of foreigners in sending money abroad; amendment of law in respect to contracts for monopoly and provision for the protection of consumers; provision for commission on motion pictures and regulation of film exhibitions; respecting defense in actions based on unreasonable agreements for rent of dwellings in cities of first class and amendment of penal law in respect to discrimination against person or family on account of children; provision that the Regents of the State University shall withhold license from any school proposing to give instruction in the doctrine that organized governments shall be overthrown by unlawful means; provision for the creating of a commission and the payment of a bonus to veterans of the World War; requiring teachers in public schools to obtain certificate from commissioner of education to the effect that they are loyal and obedient to the State and Federal governments. See EDUCATION IN THE UNITED STATES.

OFFICERS. Governor, Nathan L. Miller, Rep.; Lieutenant-Governor, Jeremiah Wood, Rep.; Secretary of State, John J. Lyons, Rep.; Controller, James A. Wendell, Rep.; Treasurer, N. M. Marshall, Rep.; Attorney-General, Charles D. Newton, Rep.; Engineer and Surveyor, Frank M. Williams; Commissioner of Education, Frank P. Graves; Superintendent of Insurance, F. R. Stoddard, Jr., Rep.; Adjutant-General, Colonel J. Lester Kinkaid.

JUDICIARY. Court of Appeals: Chief Judge, Frank H. Hiscock; Associate Judges, E. A. Chase, Frederick Collins, J. W. Hogan, B. N. Cardozo, C. W. Pound, C. B. McLaughlin, F. E. Crane, W. S. Andrews. See EDUCATION IN THE UNITED STATES.

NEW YORK BARGE CANAL. See CANALS.

NEW YORK CITY. See GARBAGE AND REFUSE DISPOSAL; RAPID TRANSIT; MUNICIPAL GOVERNMENT.

NEW YORK ORATORIO SOCIETY. See MUSIC, *Festival*.

NEW YORK PHILHARMONIC SOCIETY. See MUSIC, *Orchestras*.

NEW YORK SYMPHONY ORCHESTRA. See MUSIC, *Orchestras*.

NEW YORK UNIVERSITY. A non-sectarian State institution of the higher learning in New York City; founded in 1830. It comprises the following colleges and departments: Arts and Pure Sciences; Engineering; University and Bellevue Hospital Medical College; New York State Veterinary College; Law; Commerce, Accounts and Finance; Washington Square College; Graduate School; School of Education; Wall Street Division; Graduate School of Business Administration; Women's Law Class; Summer School. The total enrollment in the above in the fall of 1921, was 11,514, the most numerous attended departments being the School of Commerce, Accounts and Finance with 5067; the Wall Street Division, 2026; the Law School,

1332; and University and Bellevue Hospital Medical College, 519. The Summer School in 1921 had an enrollment of 2096. The faculty numbered 635. The productive funds were \$2,558,534. The library contained 160,353 volumes. A new engineering building was completed at University Heights. Chancellor, Elmer Ellsworth Brown, Ph.D., LL.D.

NEW ZEALAND, DOMINION OF. A self-governing British dependency in the South Pacific, comprising the two principal islands, North and South Islands, Stewart Island, and a number of small outlying islands. Capital, Wellington.

AREA AND POPULATION. The length of the group is 1000 miles and its greatest breadth, 180 miles. The dependent islands include the Cook Islands and various small islands in the Pacific ocean. Area of North Island, 44,130 square miles; South Island, 58,120; Stewart Island, 662; total, 103,581. Other estimates place it at 104,751 square miles. The first preliminary count of the census of New Zealand, which was taken on April 17, 1921, showed a total European population of 1,216,974. Comparison with the previous census on Oct. 15, 1916, was complicated by the fact that there were then 42,666 troops abroad. The 1916 figure, not including the troops, was 1,099,449, which would give an increase of 117,525 in the 1921 count. Including the troops, the increase would be only 74,859, yet not all of the troops returned. A much greater ratio of increase was shown in the North Island than in the South Island. The increase in the North Island since October, 1916, was given at 87,599, or 13.5 per cent, as against 29,826, or 6.7 per cent, in the South Island. The population of the four leading cities of the Dominion was given as follows, compared with the figures of the census taken in 1916:

	1916	1921
Auckland.....	64,931	81,718
Wellington.....	73,305	88,876
Christchurch.....	54,925	67,232
Dunedin.....	55,256	59,198
Total.....	248,417	297,024

In 1919 the immigration numbered 20,931; and the emigration, 19,877, in each case nearly double the number of the preceding year. The births in 1919 numbered 24,483; deaths, 10,808; marriages, 9519. In 1916, 95 per cent of the population over five years of age were reported able to read and write. At the end of 1919 the public primary schools numbered 2400 with 6062 teachers and 196,059 pupils enrolled; and there were 34 secondary schools with 381 teachers and 9068 pupils. There were also 60 district high schools and 8 technical high schools. The university is simply an examining body, but there are 4 affiliated universities as follows: The Otago University at Dunedin; Canterbury College at Christchurch; the Auckland University at Auckland; the Victoria University College at Wellington; total number of students in 1918, 2140.

PRODUCTION, ETC. Many schemes for the development of water power were considered during the year throughout the entire country, including, extensive projects at Waipori Falls, Lake Coleridge, New Plymouth, and Hora Hora Rapids. During the previous six years the coal output had so declined that the country, instead of being a coal

exporting country as formerly, had to import about one-third of its coal, and this had increased the price to such an extent that the state railway companies had raised their fare 50 per cent. It was reported that there was scarcely a district in New Zealand that had not its own local project for hydro-electric development. An extensive scheme for the dominion provided for a total horse power of 270,000 of which 160,000 was for North Island and 110,000 for South Island; and work on it had already made considerable progress. In 1921 the total imports were £87,412,829 and total exports, £48,219,672. The budget estimates for 1920-21 were as follows: Revenue, £27,712,700; expenditure, £28,953,399.

COMMUNICATIONS. Railways opened for traffic, March 31, 1920, had a mileage of 3134, of which only 138 miles were private line. In 1919 vessels entered numbered 564 of 1,480,883 tons; vessels cleared, 574 of 1,505,256 tons. Of the vessels entered 505 of 1,399,862 tons were British; and of the vessels cleared, 512 of 1,425,874 tons were British.

GOVERNMENT. Executive power is in the governor-general; and legislative power, in the governor-general and general assembly of two chambers, namely, a legislative council of 43 members, appointed by the executive until recently when it was provided that at a date fixed by proclamation the body should be made elective; and a house of representatives of 80 members, elected by popular vote for three years. The distribution by parties after the general election of December, 1919, was as follows: Reform Party, 48; Liberals, 18; Labor Party, 10; Independents, 4; government seats, 50, and the opposition, 30. Governor-general and commander-in-chief at the beginning of 1921, Admiral Jellicoe (Viscount Scapa); Prime Minister, W. F. Massey. See GERMAN SAMOA.

NEY, ELLY. See MUSIC, Artists, Instrumentalists.

NICARAGUA. The largest of the six Central American republics. Capital, Managua.

AREA AND POPULATION. The estimated area is from 49,200 to 49,552 square miles; population, Dec. 31, 1913, estimated at 689,891 and, Dec. 31, 1917, at 746,000. The population is largely mestizo and Indian, though there is a considerable element of pure Spanish extraction. The mixed and Spanish populations are found principally in the western half, while the eastern half is mainly inhabited by Mosquito and Zambo Indians and negroes from the West Indies. About three-fourths of the population live in the western half. The chief towns with their estimated populations are as follows: Managua, the capital (1920), 60,342; Leon, 73,520; Granada, 20,133; Matagalpa, 15,749; Jinotega, 13,899; Masaya, 13,023; Boaco, 10,581; Chinandega, 10,542.

EDUCATION. No later figures for education were available than those given in the preceding YEAR BOOK. The elementary schools as there stated numbered about 356 and there were 10 secondary schools. There were 3 universities, namely, the Central University at Managua; the Western and Northern at Leon; and the Eastern and Southern at Granada.

PRODUCTION. The chief sources of national wealth are agriculture, timber, and mining. There is a varied production of agricultural products in the western half, the chief crops being: Coffee, sugar cane, wheat, cacao, and beans; the

average annual crop of coffee is placed at 22,500,000 lbs. In the eastern part the banana is the chief agricultural product. The woods contain mahogany and cedar which are largely exported, and various dye woods and medicinal plants. Cattle numbered about 1,200,000. Gold is worked and exported, and copper and precious stones are found. Cotton-growing has latterly increased owing to the high prices of the past few years. A considerable new acreage has been planted. The greater part of the exports of cotton went to Barcelona, Spain.

COMMERCE. The value of the chief exports in 1919 was as follows: Cotton goods, \$2,229,407; iron and steel, \$490,442; wheat flour, \$451,874; and chemicals, \$448,186. The principal sources of the imports were: United States, \$6,687,712; United Kingdom, \$689,721; Panama, \$147,613; France, \$146,330. The value of the chief exports was: Coffee, \$6,268,096; timber, \$1,655,948; sugar, \$608,795; bananas, \$559,187; hides and skins, \$417,741. The chief countries of destination were: United States, \$7,663,827; Mexico, \$277,197; Panama, \$146,848.

COMMUNICATIONS. The ships entered in 1919 numbered 1005 of 320,299 tons; and cleared, 1016 of 320,348 tons. The only railway is the Pacific Railroad, with a length of 171 miles, but a contract was made in 1918 for the construction of a line from Bluefields to a point on the line from Managua to Granada.

GOVERNMENT. Executive power is in a president who acts through a responsible ministry, comprising the following departments: Foreign affairs and public instruction; finance; war and marine; public works; interior, justice, and police. Legislative power is in a congress of two houses: A senate of 13 members, elected for 6 years; and a house of deputies, elected for 4 years by universal suffrage. President, inaugurated, Jan. 1, 1921, Dr. Diego Manuel Chamorro.

HISTORY. United States marines were arrested, February 10, for riotous acts at Managua in which a newspaper plant was wrecked. They were sentenced, February 26, to two years' confinement and dishonorable discharge. On April 15 the senate rejected a resolution, demanding the withdrawal of American troops from Managua. On August 23 war was declared against armed forces which had invaded the country from Honduras and captured two villages near the Pacific coast; and troops to the number of about 3000 were sent to the north against them with the result that they were driven to Honduras where they were captured and disarmed, the prisoners numbering, according to press reports, 1208 soldiers, and 103 officers. After the revolutionary movement on the frontier of Honduras the troops were demobilized but the revolution showing itself later on the Pacific coast a small body was again sent to that region under General Masias, who succeeded in capturing a number of them. Their leader, General Tobos, began negotiations for surrender. In November there were further outbreaks on the Honduran frontier, including an attack by the revolutionists on the town of Samotillo, November 11, in which they were repulsed after severe fighting. There was further trouble between American marines and civilians at Managua, December 10, in which four policemen were killed and one wounded, and two of the marines, wounded.

NICHOLAS I. Former king of Montenegro, died, March 1. He was born in 1844, and educated in Montenegro and in Paris. On the assassination of his uncle in August, 1860, he was proclaimed Prince. He was a popular ruler and bore a high reputation for wisdom and patriotism. During his reign the independence of Montenegro was recognized by the Treaty of Berlin, and many reforms in education and in the military and civil administration were introduced. He was a strong supporter of the Balkan alliance in 1912, and favored the policy of going to the extreme against the Turks. At the outbreak of the late war he went promptly to the aid of Serbia, but the Montenegrin forces were completely defeated and were of no further value throughout the war. In the closing years of the war and afterwards he was attacked in the press as lukewarm in the interest of the Allies, and the controversy on that subject was resumed at intervals in 1921. See preceding YEAR BOOKS.

NICKEL. In addition to the industrial depression in 1921 which led to the shutting down before the end of 1921 of all the smelters except one furnace, nearly all mining work and the refineries in the Sudbury district in the Province of Ontario, Canada, which produce about 85 per cent of the world's requirements of nickel. The proposed reduction of naval armaments was a serious blow as much of this metal is employed in making armor plate. The Sudbury mines possess known ore reserves of 150,000,000 tons or more, and they turn out a low-grade matter which for refining purposes is sent to Port Colborne, Ont.; Deschenes Que.; Bayonne, N. J., and Clydach, Wales. The three companies operating the mines are the International Nickel Company of Canada, Ltd., the Mond Nickel Company, Ltd., and the British America Nickel Corporation, Ltd.

The estimated production of nickel in 1921 from the Ontario deposits was approximately 5200 tons, and of copper 4800 tons, as compared with about 28,000 tons of nickel and 15,000 tons of copper in 1920. The maximum production was in 1918, when 45,886 tons of nickel and 23,843 tons of copper were recovered. The Sudbury ores contained also appreciable quantities of gold and silver, and were important sources of platinum and palladium.

Producers of nickel were by no means discouraged at the threatened reduction of armaments for they looked for further development in connection with steels to which nickel was added. It had been demonstrated that increased toughness, tensile strength, and resistance to corrosion were secured by adding 2.5 to 3 per cent of nickel so that for automobile steel, for axles, tires, piston rods, bridge building, railway frogs and switches, resistance wire, nickel-silver, coinage, plating, in cooking and kitchen utensils, electrical instruments, acid-resisting equipment, and numerous other uses nickel would be required in the ordinary development and extension of industry.

NIGERIA, COLONY AND PROTECTORATE OF. A British possession in West Africa, formerly divided into several areas under separate administrations, but after 1914 united into the Colony and Protectorate of Nigeria. Seat of government, Lagos: area, about 332,000 square miles; population, about 17,500,000, including about 2800 Europeans (1919). The Northern Province has an area of 256,000 square miles and 8,870,000

inhabitants; the Southern Province, 76,000 square miles and 8,900,000 inhabitants. Under the programme in respect to slavery which provided that children born after Jan. 1, 1900, should be free, 7091 slaves were liberated in 1919 in the northern provinces. In the northern provinces in 1919 there were 18 government schools with an average attendance of 998; and 98 private schools with an average attendance of 2747; while the Mohammedan schools were placed at over 31,000 with over 205,000 pupils. In the southern provinces in 1919 there were 43 government schools with 4957 pupils; 169 aided schools with 25,187 pupils; and 1099 unaided schools with about 68,909 pupils. The chief products are: Palm oil and kernels, rubber, ivory, peanuts, cotton, cocoa, coffee, kola nuts, ostrich feathers, live stock, etc. Rich deposits of tin have been found in an area extending over 9000 square miles. In the northern provinces other mineral products are: Gold, silver, manganese, ore, lignite, and monazite. No later figures for commerce were available than those given in the preceding YEAR BOOK. The revenue for 1919 was £4,959,428; expenditure, £4,529,176. The shipping, entered and cleared, in 1919 had a tonnage of 1,072,148, of which 986,731 were British, a considerable increase over the preceding year. In 1919 there were 1126 miles of railway open for traffic. The general manager of the Nigerian Railways, in his administration report for 1920, called attention to the fact that the railways are under-equipped in both locomotives and freight cars. Although orders had been placed with an English locomotive builder for forty-two locomotives in May, 1919, in May, 1921, only five had been received. Both the colony and the protectorate have been under an executive council since Jan. 1, 1914. In addition to this there is an advisory council, consisting of the governor, the executive council, and certain other official members. Governor at the beginning of 1921, Sir Hugh Clifford.

NILSSON, CHRISTINE. Swedish opera singer, died at Copenhagen, Denmark, November 22. In the United States she was often heard and was exceedingly popular. She was born near Vexio, Sweden, August 20, 1843, the daughter of a small farmer, and at an early age became a skillful player of the violin and also learned the flute. As a girl she sang at country fairs and other public places accompanying herself on the violin. The beauty of her voice was recognized by the mayor of a small town, who sent her to Stockholm, where she studied under Franz Berwald. She appeared at the court and after 1860 studied in Paris, where on Oct., 27, 1864, she appeared at the Lyric Theatre in *La Traviata*, achieving a success which brought her a three years' engagement. In 1867 she appeared in London where she became a favorite and she sang in opera and oratorios there in 1869 and 1870. In the latter year she came to the United States under the management of Maurice Strakosch and appeared in concerts and opera. In 1872 she married M. Auguste Rouzaud, a merchant of Paris. In 1876 she made her only tour of her own country. After a successful tour in Russia, where she made a great success at St. Petersburg, she returned to the United States with the Strakosch Italian Opera troupe. She was married for a second time to Count Caradi Miranda in 1887 and retired permanently from the stage in 1888.

NIOX, GENERAL. Former Governor of the Invalides in Paris died in Paris, October 26. He began his military career in 1858 and served in the Mexican campaign and during the War of 1870. He was on the staff of the Fourth Division and fought at Rezonville and St. Privat. He was afterwards for several years a lecturer at the War School and in 1901 was appointed Commander of the Fortified Camp of Paris. He entered the military school of Saint-Cyr while under age through a special dispensation and was among the best students of the school. He took part in the Mexican campaign where he did excellent service on the staff. During the war of 1870 he participated in all the great battles. After that war when the War School was established he was appointed to the chair of military geography in which subject he was soon regarded as an authority. He was particularly effective as a lecturer and had a profound influence over students. His writings and lectures were both remarkable for their varied learning and for illustrations taken from his own experience in foreign countries.

NITROGEN. See **CHEMISTRY, INDUSTRIAL; FERTILIZERS.**

NIXON, General Sir JOHN (ECCLES). British soldier, died at St. Raphael, France, December 15. During the late war he was commander of the British forces in Mesopotamia in 1915. He was born, August 16, 1857. He entered the Indian military service, taking part in the Afghan War, 1879-80; the Mahsud Waziri expedition of 1881; and other operations; and commanded a cavalry brigade in South Africa; highly distinguishing himself in both the Indian and South African services. Among his other commands was that of the Southern Army in India from 1912 to 1915. In the latter year he was appointed to command the Northern Army in India, and he was in command of the Expeditionary Force in Mesopotamia, April, 1915, to January, 1916. The investigations that followed the ill-fated campaign and the surrender of General Townsend's forces at Kut-el-Amara, resulted in placing the chief responsibility for the disaster on General Nixon. General Townsend attributed his failure to fight his way out to commands of his superior officer expressly forbidding him to do so. On the other hand, some authorities placed part of the blame on Baron Hardinge, former Viceroy of India, and on others.

NOBEL PRIZE. The Nobel Prize was created by the celebrated Swiss chemist, Dr. Alfred E. Nobel, the discoverer of dynamite, who in his will left a fund of 50,000,000 francs to establish annual prizes for chemistry, medicine, physics, literature, and peace, the amount of each prize being 200,000 francs. The American recipients of the prizes have been as follows; Peace, Theodore Roosevelt (1906); Elihu Root (1912); Woodrow Wilson (1920); Physics, Dr. Albert A. Michelson, Professor of Physics at the University of Chicago (1907); Medicine, Dr. Alexander Carrel of the Rockefeller Institute (1912); Chemistry, Professor T. W. Richards of Harvard (1914). No American writer has received the prize of literature. On November 11, the Nobel Prize of Literature for 1921 was awarded to Anatole France. M. France according to the press reports declared before he left for Stockholm that he would bestow the prize, which amounted to 300,000 francs, on relief organizations working in Russia. The

peace prize of 1921 was divided, September 5, between two candidates: Hjalmar Branting, Prime Minister of Sweden; and Christian L. Lange of Norway, Secretary of the Interparliamentary Union. The prize of chemistry for 1920 was awarded, Nov. 12, 1921, to Professor Walther Nernst of the University of Berlin. He was Director of the Institute of Physics and Chemistry at that university and an officer of the Academy of Science of Berlin. Anatole France and Professor Nernst received the Nobel Prize, a diploma, and a gold medal, from the hands of the King of Sweden in December. M. France in the course of his reply, after expressing his appreciation and making a special reference to the awards in the case of Romain Rolland, and Branting, referred to the war and the Treaty in terms that offended the ruling classes in France. He said the most horrible of wars has been followed by a treaty which was not a treaty of peace but a prolongation of the war and that Europe would perish from it if reason did not finally enter into her counsels. A leading Parisian newspaper commented on this to the effect that while these remarks would rejoice the hearts of his revolutionary friends, they would not shine with a particularly brilliant light in his complete works; and it was suggested that the prize was awarded to him in his capacity of novelist and not of Socialist orator.

NON-PARTISAN LEAGUE. See **NORTH DAKOTA.**

NORTH CAROLINA. POPULATION. According to the report of the census of 1920, there were 2,559,123 residents in the State, Jan. 1, 1920, as compared with 2,206,287 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	2,552,000	49,254,000	\$38,418,000
	1920	2,428,000	54,630,000	61,732,000
Oats.....	1921	170,000	3,060,000	2,142,000
	1920	154,000	3,388,000	3,282,000
Wheat.....	1921	600,000	4,500,000	6,480,000
	1920	680,000	7,956,000	16,708,000
Rye.....	1921	39,000	273,000	341,000
	1920	43,000	408,000	775,000
Tobacco.....	1921	488,000	1,294,284,000	76,508,000
	1920	625,000	1,433,750,000	109,730,000
Hay.....	1921	732,000	1,752,000	14,624,000
	1920	683,000	1,724,000	16,423,000
Peanuts.....	1921	141,000	1,129,579,000	7,256,000
	1920	126,000	1,127,386,000	7,124,000
Potatoes.....	1921	46,000	4,048,000	5,780,000
	1920	46,000	4,186,000	5,944,000
Swt. potatoes.....	1921	102,000	10,802,000	9,903,000
	1920	99,000	10,296,000	11,737,000
Sor. syrup.....	1921	32,000	3,008,000	2,346,000
	1920	31,000	3,007,000	3,007,000
Cotton.....	1921	1,491,000	1,800,000	65,600,000
	1920	1,587,000	1,925,000	67,045,000

1 Pounds. 1 Tons. 1 Gallons. 1 Bales.

DRAINAGE. The Bureau of the Census issued the summary on page 517 of drainage conditions in the State at the Census of 1920.

The total works completed by the drainage enterprises to Dec. 31, 1919, comprised 1171.3 miles of open ditches and 33.5 miles of accessory levees; the additional lengths under construction were 367.8 miles of ditches only. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the enterprises nor the works of flood protection



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CAMILLE SAINT-SAËNS

Famous French composer who died recently.



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ANATOLE FRANCE

French author who received the Nobel Prize in 1921.

TWO FRENCH VETERANS FAMOUS IN THEIR RESPECTIVE ARTS

Item	Amount	Per cent of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	269,763	10.0
Farms reporting land having drainage.....	45,246	16.8
Farms reporting land needing drainage.....	42,247	15.7
All land in farms.....	acres.. 20,021,736	100.0
Improved land in farms.....	acres.. 8,198,409	40.9
Farm land reported as provided with drainage.....	acres.. 1,066,933	5.3
Farm land reported as needing drainage.....	acres.. 1,925,343	9.6
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres.. 31,193,600	100.0
All land in operating drainage enterprises.....	acres.. 542,828	1.7
Improved land.....	acres.. 204,928	0.7
Timber and cut-over land.....	acres.. 244,576	0.8
Other unimproved land.....	acres.. 93,324	0.3
Capital invested in and required for completion of operating enterprises.....	\$4,526,018	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	3,623,518	80.1
Additional capital required to complete these enterprises.....	902,500	19.9

or levee districts that had not undertaken the construction of ditches or tile drains. There was one pumping district for land drainage in North Carolina. All the drainage water from 100,000 acres is removed by 16 centrifugal pumps of 1,000,000 gallons per minute capacity, operated by steam engines capable of developing 1000 horse power. The principal crops raised on the land drained in drainage enterprises were corn and cotton.

FINANCE. Balance on hand, Nov. 30, 1918, \$1,039,543; receipts, 1919 and 1920, \$26,944,238; disbursements, 1919 and 1920, \$25,069,879; balance, Nov. 30, 1920, \$2,913,902. Total debt, Dec. 1, 1920, \$11,513,400. The floating debt, Jan. 8, 1921, was \$4,422,703.

EDUCATION. The latest available figures for education were those given in the *North Carolina Manual* of 1921 for the years 1916-17. Total school population was 837,665; enrollment, 645,956; average daily attendance, 432,396; number of teachers, 15,046; average annual salary of teachers, \$267.67.

CHARITIES AND CORRECTIONS. The State institutions with number of inmates in 1920 according to the *North Carolina Manual* of 1921 were as follows: State Prison, Raleigh, 825; Central Hospital for the Insane, Raleigh, 1416 (patients treated 1919-20); State Hospital, Morgantown, 1330; State Hospital, Goldsboro, 1000; Sanatorium for Treatment of Tuberculosis, Sanatorium, 130; Orthopedic Hospital, Gastonia; Orphan Asylum, Oxford, 376 (1918); Orphanage for the Colored Race, Oxford, 185; Soldiers' Home, Raleigh, 150; Confederate Woman's Home, Fayetteville.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Provision for the detention, treatment, and cure of inebriates; provision for the inspection of sanitary conditions of bakeries; regulation of banking institutions and provision for more thorough supervision of the same; definition and provision for punishment of attempted bribery of baseball players or officials; providing aid for blind students in the higher education; promoting cooperative marketing of farm products and authorizing in corporation of cooperative marketing associations; requiring sanitary conditions in ice-cream, cream, and cheese plants; requiring guests of hotels to register in their true names; provision for the sanitary inspection and conduct of hotels and restaurants; prescribing the manner

of organization of fraternal societies under the laws of the State; determining conditions for the licensing of dealers in stocks; provision against the crime of lynching; making it a crime to exhibit films or theatrical pieces of sacrilegious, obscence, or immoral character or to post advertisements of them; provision for a State system of roads for the development of agriculture and industry; provision for the issue of bonds in order to enlarge and improve the educational and charitable institutions.

OFFICERS. Governor Cameron Morrison; Lieutenant-Governor W. B. Cooper; Secretary of State, J. Bryan Grimes; Auditor, Baxter Durham; Treasurer, Benjamin R. Lacy; Superintendent of Public Instruction, E. C. Brooks; Attorney-General, James S. Manning.

JUDICIARY. Supreme Court: Chief Justice, Walter Clark; Associate Justices, Platt D. Walker, William A. Hoke, W. J. Adams, W. P. Stacy.

NORTH CAROLINA, UNIVERSITY OF. A co-educational institution at Chapel Hill, N. C.; founded in 1795. The enrollment for the fall session of 1921 was 1681; for the summer school, 1090. The faculty numbered 115. The university includes schools of law, medicine, and pharmacy and a graduate school, besides the college proper. In the last named the enrollment was 1273. The productive funds were \$291,200 and the income \$293,430. The library contained 100,172 bound volumes. In 1921 one new dormitory was completed and four others were in process of construction. Two class room buildings were also being built. The university received the gift of \$45,046 from the General Education fund to supplement the salaries of teachers. President, Harry Woodburne Chase, Ph.D., LL.D.

NORTH DAKOTA. POPULATION. According to the report of the census of 1920, there were 646,872 residents in the State, Jan. 1, 1920, as compared with 577,056 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Corn.....	1921	605,000	16,940,000	\$5,780,000
	1920	569,000	13,656,000	9,832,000
Oats.....	1921	2,619,000	49,761,000	10,450,000
	1920	2,518,000	60,432,000	21,151,000
Barley.....	1921	1,096,000	16,988,000	4,927,000
	1920	1,085,000	19,530,000	10,937,000
Wheat.....	1921	8,827,000	73,264,000	62,274,000
	1920	8,916,000	80,244,000	104,317,000

Crop	Year	Acres	Prod., bu.	Value
Flaxseed.....	1921	396,000	2,534,000	3,624,000
	1920	761,000	4,033,000	7,179,000
Rye.....	1921	846,000	9,306,000	5,397,000
	1920	974,000	9,740,000	11,591,000
Hay.....	1921	3,269,000	3,605,000	27,297,000
	1920	3,224,000	3,338,000	36,556,000
Potatoes.....	1921	120,000	11,520,000	8,064,000
	1920	83,000	6,557,000	6,428,000

¹ Tons.

IRRIGATION. The accompanying summary shows results of the 1920 census of irrigation conditions of the State with corresponding figures for 1910:

Item	Census of—		Increase ¹	
	1920	1910	Amount	Per cent
Number of all farms.....	77,690	74,360	3,330	4.5
Approximate land area of the state.....	acres 44,917,120	44,917,120		
All land in farms.....	acres 36,214,751	28,426,650	7,788,101	27.4
Improved land in farms.....	acres 24,563,178	20,455,092	4,108,086	20.1
Number of farms irrigated.....	340	69	271	.....
Area irrigated.....	acres 12,072	10,248	1,824	17.8
Area enterprises were capable of irrigating.....	acres 34,235	21,917	12,318	56.2
Area included in enterprises.....	acres 57,476	38,173	19,303	50.6
Per cent irrigated:				
Number of all farms.....	0.4	0.1	0.3	.....
Approximate land area of state.....	(¹)	(¹)		
Land in farms.....	(¹)	(¹)		
Improved land in farms.....	(¹)	0.1		
Excess of area enterprises were capable of irrigating over area irrigated.....	acres 22,163	11,669	10,494	89.9
Excess of area included in enterprises over area irrigated.....	acres 45,404	27,925	17,479	62.6
Capital invested.....	\$1,857,118	\$836,482	\$1,020,636	122.0
Average per acre enterprises were capable of irrigating.....	54.25	38.17	16.08	42.1
Estimated final cost of existing enterprises.....	2,072,766	836,482	1,236,284	147.8
Average per acre included in enterprises.....	36.06	21.91	14.15	64.6
Average cost of operation and maintenance per acre.....	5.50	28.40	-22.90	-80.6

¹ A minus sign (—) denotes decrease. Per cent not shown when base is less than 100.

² Less than one-tenth of 1 per cent.

DRAINAGE. A summary of the State's drainage conditions at the Census of 1920 with corresponding figures for 1910 is given in the accompanying table.

North Dakota by the Non-Partisan League met with a severe check in October. The movement which had developed under the leadership of Mr. A. C. Townley and was based on the organiza-

<i>Item</i>	<i>Amount</i>	<i>Per cent of total</i>
DRAINAGE ON FARMS		
Number of all farms in the state.....	77,690	100.0
Farms reporting land having drainage.....	682	0.9
Farms reporting land needing drainage.....	2,669	3.4
All land in farms.....	acres 36,214,751	100.0
Improved land in farms.....	acres 24,563,178	67.8
Farm land reported as provided with drainage.....	acres 89,054	0.2
Farm land reported as needing drainage.....	acres 211,305	0.6
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres 44,917,120	100.0
All land in operating drainage enterprises.....	acres 1,240,328	2.8
Improved land.....	acres 1,026,574	2.3
Unimproved land ¹	acres 213,754	0.5
Capital invested in and required for completion of operating enterprises.....	\$2,261,449	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	2,208,049	97.6
Additional capital required to complete these enterprises.....	53,400	2.4

¹ No timber or cut-over land reported.

The total works completed by drainage enterprises to Dec. 31, 1919, comprised 708.3 miles of open ditches, 9.3 miles of tile drains, and 2.1 miles of accessory levees; the additional works under construction were 4.0 miles of open ditches. These figures do not include drains or levees installed by individual farm owners supplemental to the works of the drainage enterprises, nor the works of flood protection or levee districts that had not undertaken the construction of ditches or tile drains. There are no pumping districts in the

tion of the farmers of the State, had introduced many measures in the last few years which to their enemies seemed altogether too radical and as indicating a form of State Socialism. The head of the movement in the State was Governor Lynn J. Frazier. Among the radical measures during the five years of Non-Partisan control may be mentioned the establishment of a State bank and of grain elevators and flour mills under the direction of the State. The idea of the League was that the State government should be used as a

coöperative business agency in the belief that the farming communities of the State were oppressed by the methods in use under private management by the railway companies, the grain-buying companies, and the millers and merchants of large cities outside the State. The government system of Dakota provides for the recall of officials. A vote of recall was taken which resulted in the removal of Governor Frazier and two other officials (the Attorney-General and the Commissioner of Agriculture and Labor) and placing in office Mr. R. A. Nestos as governor. This was a serious reverse to the Non-Partisan League which five years before had elected Governor Frazier by a majority of four to one, although in his reelection this majority had diminished. According to press reports, Mr. A. C. Townley, who had been convicted, July 12, 1919, on the charge of violating the Minnesota sedition law and whose appeal to the United States Supreme Court had been rejected, was placed on November 2 in the Jackson County jail, Jackson, Minn., to serve his sentence of ninety days in prison.

OFFICERS. Governor, Rangvald A. Nestor; Lieutenant-Governor, Howard R. Wood; Secretary of State, Thomas Hall; State Auditor, D. C. Poin-dexter; State Treasurer, John Steen; Attorney-General, Sveinbjorn Johnson; Commissioner of Insurance, S. A. Olsness; Commissioner of Agriculture and Labor, Joseph A. Kitchen; Superintendent of Public Instruction, Minnie J. Nielson.

JUDICIARY. Supreme Court: Justices, Luther E. Birdzell, J. E. Robinson, R. H. Grace, Harry A. Bronson, A. M. Christianson.

NORTH DAKOTA, UNIVERSITY OF. A co-educational State institution of higher education at University Station, Grand Forks, N. D.; founded in 1883. The enrollment for the fall of 1921 was 1247 and for the summer session 381. The faculty numbered 121 of whom 9 were added in the course of the year. The productive funds consisted of Federal land endowments invested, and, including the value of unsold lands, amounted to \$2,203,053. Total income \$543,583. The library contained 72,000 volumes. The university received an appropriation of \$150,000 for a new law school building. President, Thomas Franklin Cain, Ph.D., LL.D.

NORTH SHORE MUSIC FESTIVAL. See Music, Festival.

NORTHERN TERRITORY. A territory of the Australian Commonwealth, situated in the central and northern part of the continent; formerly a part of the state of South Australia, but transferred under the agreement of Dec. 7, 1907, to the Commonwealth government, Jan. 1, 1911. Area, 523,620 square miles; population, exclusive of aborigines, Dec. 31, 1919, 4706, the aborigines being estimated at about 20,000. In 1916, 744 square miles had passed under ownership and 166,143 were held under lease and license. The remainder was unoccupied. Principal city, Darwin, situated on the chief harbor, with a population in 1911 of 958.

NORTHRUP, ANSEL JUDD. Lawyer and author, died in 1921. He was born in Madison County, N. Y., June 30, 1833; and graduated with honor at Hamilton College in 1858, after which he studied law at the Columbia Law School. He was admitted to the bar in 1859, and practiced law in Syracuse, N. Y. He was judge in Onondaga County from 1882 to 1894, and commissioned to

revise the statute and code of New York, 1895-1901. He was vice-president and president of the Loyal Legion during and after the Civil War; and was prominent in Presbyterian circles. He wrote two volumes pertaining to his camping and fishing experiences; also, *Slavery in New York* (1900); *Powers and Duties of Elders in the Presbyterian Church* (1908).

NORTHRUP, HENRY EVANS. Lecturer and educator, died at Brooklyn, N. Y., November 28. He was born in 1854, graduated at Yale in 1876, and for seventeen years preceding his death taught German in the Polytechnic Institute at Brooklyn. He was well known as a lecturer and traveler, and during the war he was attached to the Secret Service.

NORTHWEST PROVINCES. The prairie provinces of Canada. See CANADA.

NORTHWEST TERRITORIES. That part of western Canada which is bounded on the west by Yukon Territory and separated by the 60th parallel from British Columbia and the Prairie Provinces on the south; comprising the territories formerly known as Rupert's Land and the Northwest territories, except the portions now included in Manitoba, Saskatchewan, Alberta, and the Yukon Territory. Area, estimated at 1,242,224 square miles, including 34,298 water area; population, 1911, 18,481. It is under the administration of the Royal Northwest Mounted Police, directed by a commissioner whose headquarters are at Ottawa. Commissioner at the beginning of 1921, William Wallace Cory.

NORTHWESTERN COLLEGE. A co-educational institution of the higher learning at Naperville, Ill.; founded in 1861. The enrollment for the fall of 1921 was 554 and the faculty numbered 38 of whom an assistant-professor of military science and an assistant-professor of Spanish and French and an instructor in chemistry were added in the course of the year. The productive funds were \$387,364 and the income, \$89,169. The library contained 16,000 volumes. The college received \$500,000 additional endowment and \$250,000 for new buildings, as a result of the campaign on the part of the "Forward Movement" of the Evangelical Association to raise funds for various church purposes. President, E. Rall, Ph.D.

NORTHWESTERN UNIVERSITY. A co-educational institution of the higher learning at Evanston, and Chicago, Ill.; founded in 1851. The university consists of the College of Liberal Arts, the Graduate School, and the Schools of Medicine, Law, Engineering, Dentistry, Music, Commerce, and Journalism. The total enrollment for the fall of 1921 was 6590 and for the summer schools 1369. The faculty numbered 508. The university library contained 125,000 volumes; the Elbert B. Gray Law Library, 50,000; and the other school libraries 25,000 volumes. President, Walter Dill Scott, Ph.D., LL.D.

NORWAY. A constitutional monarchy in northwestern Europe, forming the western and northern part of the Scandinavian peninsula, with an extreme length of 1110 miles and an extreme width of 250 miles; formerly united with Sweden, but separated, June 7, 1905. Area, 125,001 square miles; population, Dec. 1, 1910, 2,391,782; estimated, Jan. 1, 1920, 2,691,855; Capital, Christiania, with an estimated population, Jan. 1, 1920, of 263,713. The next largest cities with

their populations at that date were: Bergen, 90,960; Trondhjen, 55,032; Stavanger, 44,620. The movement of population in 1919 was as follows: Births (exclusive of still born), 63,508; deaths (exclusive of still born), 43,408; marriages, 20,031. The emigration in 1919 amounted to 2432, of whom 2286 went to the United States. The national church and the only one endowed by the state is the Lutheran. In 1910 the dissenters numbered only 62,553, including 10,986 Methodists; 7659 Baptists; and 2046 Roman Catholics. Education is compulsory between six and a half years and fourteen years. No later statistics were available than those given in the preceding YEAR BOOK.

PRODUCTION. Of the total area 75 per cent is unproductive and about 22 per cent is under forests: less than 3½ per cent is under cultivation. The chief resources are forests and fisheries. The principal agricultural products are: Potatoes, hay, oats, barley, wheat and rye. In 1919 the production of potatoes was 40,667,600 bushels; barley, 607,245 quarters; oats, 1,570,069 quarters; hay, 1,715,363 tons. The forests covered an area of about 27,434 square miles, of which 75 per cent is under pine, and of which 3259 square miles are owned by the state. In 1919 the value of unwrought or partly wrought timber, exported, was 77,840,900 kroner, and of wrought timber, chiefly wood pulp, 113,048,100 kroner. The principal mineral products are: Silver, pyrites, copper, iron ore, feldspar, and nickel ore.

FISHERIES. The cod fisheries in 1920 showed a catch of 38,000,000 which was an excess over the average of the preceding four years, but unsatisfactory in respect to value because of the low prices prevailing. The total value of cod fisheries for 1920 was 45,000,000 crowns as compared with 48,000,000 crowns in 1919. The herring catch in 1920 was estimated at 6,200,000 crowns against 24,800,000 crowns in 1919. The whaling industry on the other hand was fairly successful, the total production of whale oil amounting to 212,700 barrels as compared with 163,000 barrels in 1919.

SHIPPING. The registered merchant marine of Norway, Jan. 1, 1920, was 3665 vessels of 1,315,892 net tons, of which 457 vessels of 231,862 net tons were sailing craft, the rest being steam and motor. The vessels entered in 1919 numbered 6094 of 3,056,041 net tons, of which 2971 of 1,163,108 net tons were foreign; vessels cleared, 6013 of 3,039,571 net tons, of which 2890 of 1,168,529 net tons were foreign.

RAILWAYS. Total railway mileage, Jan. 1, 1920, 2019. The railways of Norway, 80 per cent of which (1850 miles) were operated by the state, suffered during the year from abnormal costs of operation. Notwithstanding that freight rates had been increased twice since 1913, and were 200 per cent higher for all classes of merchandise except certain foodstuffs, fodder, manure, and fuel, for which the increase was but 160 per cent, the system continued to operate at a deficit. Likewise there was an increase in passenger rates from 1913 amounting to 180 to 190 per cent for first class fares and from 140 to 150 per cent for second and third class fares, though second class fares had at times been even 180 to 190 per cent above the prewar basis.

DEFENSE. Norwegian subjects are liable to military service between the ages of 18 and 55. The army is a national militia, of which the total

peace strength is placed at 118,500 and the addition available on mobilization, at 282,000. At the beginning of 1921 the main vessels of the Norwegian fleet were of old model, numbering 4 of which 2 had a displacement of 4200 tons each, and 2, of 3900 tons each. Besides these there were a number of gunboats destroyers, torpedo boats, mine layers, and 4 submarines.

GOVERNMENT. Executive power is in the king (Haakon VII, born August 3, 1872, elected king, Nov. 18, 1905) who acts through a responsible ministry, known as the council of state. Legislative power is in the Storting or parliament, elected by universal suffrage without distinction of sex. Distribution of members by party groups at the beginning of 1921: Liberals, 52; Conservatives, 39; Socialists, 18; Moderate Liberals, 10; Agricultural party, 3; Democrats, 3; Independents, 1. Ministry in 1921, appointed in June: Prime Minister and Minister of Finance, Blehr; Foreign Affairs, Raestad; Commerce, Mowinkel; Interior, Oftedal; Justice, Amundsen; Defense, Aavatsmark; Labor, Mjelde; Agriculture, Five; Worship and Public Instruction, Olsen Nalun.

HISTORY. A division of the National Labor Party on January 17 led to the formation of a new group, known as the Norwegian Socialist-Democratic-Labor party which consisted largely of moderate Socialists who believed in parliamentary methods. On September 8 the Oldesting or lower house, adopted a bill which forbade the importation of wines or liquors having over 14 per cent of alcohol. During the war the limit had been 12 per cent but the maximum was afterwards raised as above. Absolute prohibition, however, was advocated by a strong and uncompromising party and the general sentiment appeared to be in favor of it as was indicated by a considerable majority which voted for it in the plebiscite two years before. Smuggling rendered easy by the windings and irregularities of the coast was carried on to a great extent, the stock being brought largely from Denmark, Sweden, and Germany; and the illicit making of whisky and other liquor was a flourishing industry. The law prohibiting importation of wines and liquors having more than 14 per cent alcohol after passing the lower house was approved by the senate. A supplementary measure which proposed to ration liquors for medicinal purpose had meanwhile been rejected. Thus in September Norway was under a limited prohibition system which promised to endure unless the coming elections fixed for October 24 should return a Conservative majority, in which case this policy was likely to be reversed. Liquor smugglers were still active on the coast operating for the most part on German vessels which kept just outside the three-mile limit. To overcome this abuse the government put through a measure which extended Norway's jurisdiction for custom purposes to a ten-mile limit. The resumption of trade with Russia had been under discussion for a long time past and after protracted negotiations a commercial agreement was made with the Soviet government. Conservative opinion was hostile to this policy, which, it implied, amounted to a recognition of the Bolshevik state. It was also criticised on the ground that it had not obtained an acknowledgment of the claims of Norway for compensations for property of Nor-

wegians seized in Russia and amounting to about 300,000,000 kroner. Great offense was occasioned in labor circles by a demand of the executive of the Third International that 70 Norwegian trade union leaders be expelled because in the preceding labor conference at Christiania they had voted against immediate adherence to the Third International. A body representing the trade unions was sent to Moscow to try to settle the dispute.

NORWEGIAN LANGUAGE. See **PHILOLOGY, MODERN.**

NORWEGIAN LITERATURE. See **SCANDINAVIAN LITERATURE.**

NOTRE DAME UNIVERSITY. A Roman Catholic institution of higher learning at Notre Dame, Ind.; founded in 1842. The university includes colleges of arts and letters, science, engineering, commerce, and of law. The total enrollment for the fall of 1921 was 1490 and for the summer school 648. The faculty numbered 103 of whom 24 were added in the course of the year. The teaching is in part gratuitous, 50 members of the faculty who belong to the religious society of Holy Cross, giving their services. In 1921 the gifts totaled \$645,000. The library contained 145,000 volumes. During the year the commerce course was raised to a separate department with a dean at its head. President, Thomas A. Burns, Ph.D.

NOTTINGHAM, WILLIAM. Lawyer, died at Syracuse, N. Y., January 23. He was born at DeWitt, N. Y., Nov. 2, 1853; graduated at Syracuse University in 1876 and was admitted to the bar in 1879 after which he practiced at Syracuse. He organized the Syracuse Trust Company and was counsel or director of many important institutions in the city.

NOVA SCOTIA. One of the Maritime Provinces of Canada. Capital, Halifax, the chief naval station of Canada. Area, 21,428 square miles, of which 360 are under water; population in 1911, 492,338; in 1921, 524,579. Population of Halifax in 1911, 46,619; in 1921, 57,674; Sydney, next largest city, in 1911, 17,723; in 1921, 22,527. The movement of population in 1918-19 was as follows: Births, 12,508; deaths, 9200; marriages, 3585. The chief occupation is agriculture. Area under cultivation in 1920 was 920,000 acres, and the production was valued at \$47,847,000. There was a profitable fruit production, apples being the most important crop (output in 1920, 2,000,000 barrels). The potatoes are of a superior quality and also one of the chief crops. In 1920 there were 398,000 cattle in the province and 264,000 sheep. The average annual wool clip is over 1,000,000 lbs. The estimated forest area is 12,000 square miles. The fisheries along with those in Newfoundland are the most important in Canada, and engage

annually about 30,000. The value of the 1920 catch was \$13,890,000. Among the minerals which are very numerous are: Coal, iron, gold, copper, silica, clays, gypsum, lead, silver, and manganese. The railway mileage in 1918 was given at 1490. Executive power is in a lieutenant-governor, appointed for five years by the Dominion government, who acts through a council or responsible ministry; and legislative power is in the lieutenant-governor and a legislative council and a house of assembly, the former appointed by the crown, and the latter elected by popular vote for five years. Lieutenant-governor at the beginning of 1921, McC. Grant; Prime Minister, George H. Murray.

The elections of July 27 resulted in the overwhelming defeat of the Conservatives who elected only one member, and returned the Liberal government to power under the head of G. H. Murray. The members elected were: Liberals, 29; Labor party, 6; Farmers' party, 7. See CANADA.

NOYES, CHARLES PHELPS. Wholesale druggist and banker, died at St. Paul, Minn., April 30. He was born at Lyme, Conn., April 24, 1842 and after an academic education became clerk in a banking house in New York City in 1860. In 1861 he became partner in a wholesale druggist firm at St. Paul which later took the name of Noyes Brothers and Cutler of which he became president. He was also president of various banking, insurance, and other institutions of the State.

NUT CROPS. See **HORTICULTURE.**

NUTRITION. See **FOOD AND NUTRITION.**

NYASSALAND, or NYASALAND PROTECTORATE. A British protectorate, formerly known as British Central Africa, situated on the southern and western shores of Lake Nyassa, and extending toward the Zambesi river. Area, 39,573 square miles; population (1920), 1,202,208 natives; 1015 Europeans; and 515 Asiatics. The seat of government is Zomba and the chief settlement is Blantyre. The schools in 1918-19, numbered 1991, with 125,159 pupils enrolled. Education is in the hands of 11 Christian missionary societies. The production includes: Coffee, chiefly produced in the Shiré province; tobacco which is grown for export; and latterly cotton. Imports (1919-20), £569,890; exports, £429,086; a considerable decrease in each case from the preceding year. Revenue, £186,266; expenditure, £217,696. The military consists of a volunteer reserve and a civil police force, and since 1920 of a European police force. The protectorate is under a governor and commander-in-chief who is aided by an executive and a legislative council, both of which are nominated. Governor at the beginning of 1921, Sir George Smith.

O

OATS. As in 1920, statistics regarding the world's production of oats in 1921 were incomplete. The total yields of 26 countries reporting to the International Institute of Agriculture, Rome, aggregated 2,928,435,000 bu., which was 13.2 per cent below the total production of the same countries in the preceding year. The leading countries and their yields in 1921 were as follows: Canada, 541,973,000 bu., Germany, 324,885,000 bu., France, with Alsace-Lorraine, 245,209,000 bu., Poland, 149,790,000 bu., England and Wales, 97,714,000 bu., Czecho-Slovakia, 72,352,000 bu., Roumania, 68,372,000 bu., and Sweden, 67,612,000 bu.

The average yields for these countries for the five years 1909-13, which were as follows, indicate in a general way the relative recovery from the influences of the war: Canada, 387,678,000 bu., Germany, 591,996,000 bu., France, including Alsace-Lorraine, 323,204,000 bu., England and Wales, 82,024,000 bu., Roumania, 27,545,000 bu., and Sweden, 79,115,000 bu. The former Russian empire in 1912 and 1913 produced over 1,000,000,000 bu., but since its disruption no data on production have been available. The average yield per acre for the 5-year period 1910-14 was 21.8 bu. for European Russia, 54.7 bu. for Germany, 37.5 bu. for Austria, 31.9 bu. for Hungary, 31 bu. for France, and 42.9 bu. for the United Kingdom as compared with 30.5 bu. for the United States.

The total yield of the United States in 1921, according to estimates by the Department of Agriculture was 1,060,739,000 bu., of 435,544,000 bu. below the crop of 1920. The area devoted to oats in 1921 was 44,826,000 acres, an increase of 2,335,000 acres over the area of the preceding year, but the average acre yield was only 23.7 bu. as compared with 35.2 bu. the year before and with 29.3 bu. in 1919. The average farm value of oats per bu. on Dec. 1, 1921, was 30.3 cts., and on this basis the total value of the crop of grain was \$321,540,000 or \$366,771,000 less than the value of the crop of 1920 and \$512,382,000 less than that of 1919 with bushel values on the corresponding dates of 46 cts. and 70.4 cts, respectively. The estimated average weight per measured bushel in 1921 was 28.3 lbs., the lowest for a series of years. The low yield per acre and the light weight per bushel were due largely to late spring freezes and to droughty conditions in some of the oat-producing regions.

A large continued drought extending over large areas in Europe and eastward also reduced yields of oats and other crops in that section of the northern hemisphere. Before the European war the principal oat-exporting countries mentioned in the decreasing order of the quantities exported were Russia, Argentina, the Netherlands, Germany, Canada, the United States, and Roumania; and the principal importing countries, similarly given, were the United Kingdom, the Netherlands, Germany, France, and Switzerland.

The fact that the Netherlands and Germany appeared as both importing and exporting countries indicated commercial activity in the commodity with other countries. For the three years 1911-13 an average of about 235,000,000 bu. entered into international trade.

OBERLIN COLLEGE. A non-sectarian co-educational institution of the higher learning at Oberlin, Ohio; founded in 1873. The enrollment for the fall of 1921 was 1607 of whom 1192 were in the College of Arts and Sciences; for the summer session, 194. The teaching staff numbered 129. The library contained 221,000 volumes. The productive funds amounted to \$2,854,526 from which the income was \$142,725. During the year the college received in money \$121,796 and various valuable paintings and other objects, largely Oriental, donated to the library and the art museum. A new four-year training course for school music supervisors was organized in the Conservatory of Music. President, Henry Churchill King.

OBERLY, EUNICE ROCKWOOD. See NECROLOGY.

OCEANIA, FRENCH ESTABLISHMENTS IN. A French colony in the eastern Pacific, consisting of scattered groups of small islands. Total area estimated at 1520 square miles; population in 1911, 31,477; estimated in 1919, 81,200. Capital, Papeete on the island of Tahiti. The main group is the Society Islands, of which the most important are Tahiti and Moorea; Others are the Marquesas Islands; the French Leeward Islands, and the Gambier, Tubuai, Tuamotu, and Rapa groups. In the Society Islands, Tahiti has an area of about 600 square miles and a population of 11,691; the Marquesas Islands have a total area of about 480 square miles with a population of 3424. During the year 1920 the values of imports into French Oceania were: From France, 595,953 francs; from other countries, 13,805,153 francs; total, 14,401,106 francs. Exports to France were valued at 1,504,765 francs; to other countries, 22,851,136 francs; total, 24,355,901 francs. The total foreign commerce amounted to 38,757,007 francs, against 30,638,214 francs in 1919, the imports showing an increase of 2,385,434 francs, and the exports an increase of 5,738,406 francs.

ODLING, WILLIAM. British chemist, died at Oxford, England, in February. For forty years he was Waynflete Professor of Chemistry at Oxford. He was born at Southwark, Sept. 5, 1829, and studied for the medical profession, but early turned his attention to chemistry and went to the Continent where he studied at Strassburg. In 1868 he was elected to succeed Faraday as professor of chemistry at the Royal Institution and in 1872 became Waynflete Professor, at Oxford, holding that chair until 1912. He was an excellent teacher as well as a skillful speaker on many subjects, his interests not being confined to his specialty. Among his books may be mentioned *Manual of Chemistry* (1869); *Course of*

Practical Chemistry (1878), and an elementary work on chemistry published in 1882.

OEDENBURG. See HUNGARY, paragraph 'on *Burgenland*.

O'GORMAN, THOMAS. Roman Catholic bishop, died, September 8. He was born at Boston, Mass., May 1, 1843; and educated in Chicago and St.

census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The accompanying table gives a comparative summary for the State in 1919 and 1914:

	Census—		Per cent of increase ¹ 1914-19
	1919	1914	
Number of establishments.....	16,125	15,658	2.9
Persons engaged in manufactures	978,068	606,807	61.2
Proprietors and firm members	12,823	13,624	-5.9
Salaried employees.....	139,380	82,748	68.4
Wage earners (average number)	730,733	510,435	43.2
Primary horsepower.....	2,894,389	2,002,780	44.5
Capital.....	\$3,810,859,879	\$1,677,551,633	127.2
Services.....	1,218,366,093	423,168,649	187.9
Salaries.....	1,273,714,359	105,264,836	160.0
Wages.....	944,651,734	317,923,813	197.1
Materials.....	2,910,838,308	1,020,782,015	185.2
Value of products.....	5,100,298,728	1,782,808,279	186.1
Value added by manufacture (value of products less cost of materials)	2,189,460,420	762,026,264	187.3

¹ A minus sign (—) denotes decrease.

Paul, and studied in France. He was pastor at Rochester, Minn., from 1867 to 1878, and a member of the Paulist community in New York from 1878 to 1882, and after holding a pastorate in Minnesota, became the first president of St. Thomas, Merrian Park, St. Paul, Minn., where he was professor of dogmatic theology from 1886 to 1890. During the next five years he was professor of modern church history at the Catholic University at Washington. Meanwhile, he had been consecrated bishop of Sioux Falls, April 19, 1896. He wrote among other works a history of the Roman Catholic Church in the United States.

OHIO. POPULATION. According to the report of the census of 1920, there were 5,759,394 residents in the State, Jan. 1, 1920, as compared with 4,767,121 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	3,888,000	159,326,000	\$65,324,000
	1920	3,965,000	172,081,000	117,015,000
Oats.....	1921	1,614,000	37,122,000	12,250,000
	1920	1,540,000	68,068,000	34,034,000
Barley.....	1921	97,000	2,037,000	1,039,000
	1920	102,000	2,825,000	2,316,000
Wheat.....	1921	2,314,000	28,697,000	30,993,000
	1920	2,395,000	30,430,000	50,209,000
Clover seed.....	1921	172,000	224,000	2,397,000
	1920	195,000	254,000	3,124,000
Rye.....	1921	83,000	1,079,000	906,000
	1920	90,000	1,296,000	1,750,000
Tobacco.....	1921	42,000	138,640,000	5,796,000
	1920	63,000	160,480,000	7,862,000
Hay.....	1921	3,215,000	4,084,000	46,962,000
	1920	3,153,000	4,256,000	82,974,000
Potatoes.....	1921	116,000	6,728,000	10,428,000
	1920	116,000	11,600,000	15,660,000
Sor. syrup.....	1921	4,000	320,000	320,000
	1920	6,000	546,000	830,000

¹ Pounds.

² Tons.

³ Gallons.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Ohio was issued by the Bureau of the Census. The

LEGISLATION. Among the measures passed at the legislative session may be mentioned: Amendment of existing laws relating to compulsory education, employment of minors, duties of boards of education, and other educational matters; creating a State bureau of criminal identification; provisions for the prevention of forest fires and the establishment of a State forest nursery, and authorization of municipal, township, or county forests; licensing of ice-cream plants; provision for cooperative marketing; provision for the appointment of a commissioner to enforce prohibition law; authorizing the localities to maintain playgrounds, gymnasiums, public baths, etc.; provision for State supervisory control of public water supplies; extending the benefits of workmen's compensation to occupational diseases; provisions for the purpose of preventing loans for current expenses or deficiencies, for the protection of sinking funds, and for the restriction of the term of loans, etc.

OFFICERS. Governor, Harry L. Davis; Lieutenant-Governor, Clarence L. Brown; Secretary of State, Harvey C. Smith; State Treasurer, Rudolph Archer; State Auditor, Joseph T. Tracy; Attorney-General, John G. Price.

OHIO NORTHERN UNIVERSITY. An institution of the higher learning at Ada, Ohio; founded in 1871. The enrollment for 1921 was 1043 and there were 35 members in the faculty. President, Albert Edwin Smith, D.D., Ph.D.

OHIO STATE UNIVERSITY. A State institution of the higher learning at Columbus, Ohio; founded in 1870. The enrollment for the fall of 1921 was 7639 of whom 5657 were men and 1982 women; for the summer session, 1562 of whom 1052 were men and 510 women. The faculty numbered 625 of whom 70 were men and of whom 56 were added during the year. The library contained 221,956 volumes. The productive funds amounted to \$1,058,084. President, William Oxley Thompson, D.D., LL.D.

OHIO UNIVERSITY. A co-educational State institution of the higher learning at Athens, Ohio; founded in 1804. The enrollment for the fall of 1921 was 1330 and for the summer session 2043. The faculty numbered 85. The library contained

53,500 volumes. President, Elmer Burritt Bryon, LL.D., Ph.D.

OHIO WESLEYAN UNIVERSITY. A co-educational institution of the higher learning at Delaware, Ohio; founded in 1844. The enrollment for the fall of 1921 was 1623 of whom 893 were women and 730 men. The faculty contained 116 members. The library had 88,343 bound volumes. The productive funds amounted to \$1,600,000 and the income to \$388,964. President, Rev. John Washington Hoffman, D.D., LL.D.

OIL. See **PETROLEUM.**

OIL ENGINES. See **INTERNAL COMBUSTION ENGINES.**

OKLAHOMA. POPULATION. According to the report of the census of 1920, there were 2,028,283 residents in the State, Jan. 1, 1920, as compared with 1,657,155 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	3,077,000	75,925,000	\$24,618,000
	1920	2,820,000	78,960,000	42,638,000
Oats.....	1921	1,765,000	35,300,000	9,531,000
	1920	1,650,000	54,450,000	23,958,000
Barley.....	1921	122,000	2,684,000	1,208,000
	1920	116,000	2,784,000	2,004,000
Wheat.....	1921	3,786,000	47,325,000	40,700,000
	1920	3,380,000	54,080,000	73,008,000
Broom corn.....	1921	128,000	19,200	1,229,000
	1920	178,000	19,200	2,477,000
Hay.....	1921	1,395,000	1,868,000	14,203,000
	1920	1,388,000	2,012,000	22,064,000
Peanuts.....	1921	15,000	10,800,000	756,000
	1920	12,000	10,080,000	706,000
Potatoes.....	1921	36,000	2,088,000	3,863,000
	1920	35,000	2,590,000	4,662,000
Swt. potatoes.....	1921	27,000	2,646,000	2,805,000
	1920	23,000	2,645,000	3,491,000
Cotton.....	1921	2,206,000	530,000	40,810,000
	1920	2,749,000	1,336,000	70,156,000
Gr. sorghums.....	1911	1,240,000	26,040,000	7,812,000
	1920	1,350,000	35,100,000	21,060,000

¹ Tons.

² Pounds.

³ Bales.

IRRIGATION. The United States Bureau of the Census issued the accompanying table giving a summary of the irrigation conditions of the State at the census of 1920 with corresponding figures for 1910:

	Census of—	
	1900	1910
Number of all farms.....	191,988	190,192
Approximate land area of the state.....	acres.. 44,424,960	44,424,960
All land in farms.....	acres.. 31,951,934	28,859,353
Improved land in farms.....	acres.. 18,125,321	17,551,337
Number of farms irrigated.....	73	137
Area irrigated.....	acres.. 2,969	4,388
Area enterprises were capable of irrigating.....	acres.. 9,672	6,397
Area included in enterprises.....	acres.. 11,742	8,528
Per cent irrigated:		
Number of all farms.....	(1)	0.1
Approximate land area of state.....	(1)	(1)
Land in farms.....	(1)	(1)
Improved land in farms.....	(1)	(1)
Excess of area enterprises were capable of irrigating over area irrigated.....	acres.. 6,703	2,009
Excess of area included in enterprises over area irrigated.....	acres.. 8,773	4,140
Capital invested.....	\$151,325	\$47,200
Average per acre enterprises were capable of irrigating.....	15.65	7.38
Estimated final cost of existing enterprises.....	162,775	47,200
Average per acre included in enterprises.....	13.86	5.53
Average cost of operation and maintenance per acre.....	2.92	0.51

¹ Less than one-tenth of 1 per cent.

Alfalfa and corn were the only crops for which the area reported as irrigated exceeded 100 acres. The area of irrigated alfalfa reported was 417 acres, with a yield of 615 tons, or 1.47 tons per acre. The average yield for the whole State was 1.96 tons per acre. The area of corn reported as irrigated was 237 acres, with a yield of 4124 bushels, or 17.4 bushels per acre. The average yield for the State was 21.8 bushels per acre. The remaining irrigated area was divided among other farm crops, gardens, and pastures.

MANUFACTURES. The United States Bureau of the Census issued the accompanying table (see page 525) of the census of manufactures in 1919 with corresponding figures for 1914.

In 1920 there were 12 cities in the State—Ardmore, Bartlesville, Chickasha, Enid, Guthrie, McAlester, Muskogee, Oklahoma City, Okmulgee, Sapulpa, Shawnee, and Tulsa—having more than 10,000 inhabitants. These twelve cities, the combined population of which in that year was 317,264, formed 15.6 per cent of the total for Oklahoma, and in 1919 reported 33.3 per cent of the value of the State's manufactured products. The large increases in salaries and wages, cost of materials, and the value of products, from 1914 to 1919, as presented in the table, are chiefly due to the change in industrial conditions brought about by the World War, and therefore cannot properly be used to measure the growth of manufactures during the census period 1914-19. The increases shown, however, in number of wage earners and horsepower are indicative of a decided growth in the manufacturing activities of the State. The addition of the Federal income tax since 1914 will account for the large increase in "Rent and taxes."

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Provision for prophylactic treatment of the eyes of the newly born; regulating the practice of chiropractics; providing for a survey of the State school system; requiring the teaching of American history and civil government in all the graded and high schools; definition and regulation of the practice of osteopathy.

OFFICERS. Governor, J. B. A. Robertson; Lieutenant-Governor, M. E. Trapp; Secretary of State, Joe S. Morris; Treasurer, A. N. Leecraft; Auditor, Frank Carter; Attorney-General, Prince Freeling.

	Manufacturing Industries		Per cent increase, or decrease ¹ 1914-19
	1919	1914	
Number of establishments.....	2,445	2,518	-2.9
Persons engaged.....	38,314	22,700	68.8
Proprietors and firm members.....	2,320	2,464	-5.8
Salaried employees.....	5,491	2,793	182.4
Wage earners (average number).....	29,503	17,443	69.1
Primary horsepower.....	139,983	97,308	43.9
Capital.....	\$277,034,318	\$65,477,664	323.1
Salaries and wages.....	46,987,133	14,213,375	230.6
Salaries.....	11,961,191	3,202,332	273.5
Wages.....	35,025,942	11,011,043	218.1
Paid for contract work.....	475,181	307,885	54.3
Rent and taxes.....	5,608,944	909,729	516.6
Cost of materials.....	312,605,829	70,969,750	340.5
Value of products.....	401,362,869	102,005,693	293.5
Value added by manufacture.....	88,757,040	31,035,943	186.0

¹ A minus sign (—) denotes decrease.

OKLAHOMA, UNIVERSITY OF. A co-educational State institution of the higher learning at Norman, Okla.; founded in 1890. The student enrollment for the fall of 1921 was 3013 not including the school for nurses. Of the above enrollment 916 were men and 1097 women and the largest number was included in the College of Arts and Sciences, 1738. Other departments are education, finance, engineering, law, pharmacy, and medicine. The faculty numbered 200. The library contained 40,000 volumes. The women's building devoted especially to the interests of the women students was completed during the year. During the year the sum of \$939,252 was applied to maintenance of the university and \$327,520 to the maintenance of the university hospital. President, Stratton D. Brooks, LL.D.

OLD AGE PENSIONS. The most considerable legislation enacted during the year in the United States was that of Illinois and New Jersey. Illinois' two new laws went into effect, July 1, 1921. One concerns itself with the creation of an annuity and benefit fund for municipal employees in each city of 200,000 or more inhabitants and makes the following provisions: "It will cover all regular civil service employees automatically, and will cover the employees in 'the labor service' of the city if they so elect. Pension funds now in operation under the law of 1911, which created them for cities of over 1,000,000 population, will be taken over by the boards of trustees of the funds created under this act. To establish his right to a retirement pension the employee has 3¼ per cent of his salary deducted, to which the city adds a sum equal to 5¾ per cent of the salary and in addition 4 per cent interest on the sum paid by the employee. The city's obligation is retroactive for whatever period of time the employee has served prior to the adoption of this system. To establish the right of his widow to an annuity after his death, the employee pays an additional 1 per cent of his salary and the city adds an additional 1¾ per cent with interest as in the former case. The percentage of salaries to be deducted for the various funds are to be revised after the system has been in operation for a year. The proportional divisions of payment between the city and the employees will remain the same, but the actual amounts will be revised to provide just the sums which experience shows to be necessary."

The second Illinois law amends the existing act

creating a pension fund for county employees so as to provide for contribution by the county itself. In 1922 each county is to contribute a sum equal to the amount paid by employees in 1921, and beginning with 1923, each county is to contribute annually a sum equal to twice the contribution of employees for the fiscal year preceding. Taxation is authorized for this purpose.

New Jersey passed four old age pension laws, two dealing with employees of city water departments and two with State employees. A State employees' retirement system, effective Jan. 1, 1922, was inaugurated to cover State employees not already covered, and any of those who shall renounce the benefits of former systems and elect to become members of this one. "All employees appointed after this act takes effect, including those who would formerly have come under some other retirement system, become members of this system automatically after completing six months' service and may elect to do so sooner. Employees appointed previous to this act may elect whether they shall become members. The board of trustees may in their discretion deny or make optional the privilege of membership for elected officials, non-civil service employees, and employees paid only in part by the State. Retirement on a service allowance is optional for an employee over sixty and obligatory for one over seventy. An employee under sixty may be retired on an ordinary disability allowance provided he becomes physically or mentally incapacitated after serving ten years or more. Special accident disability allowances are provided for employees disabled because of their work, provided they are not guilty of willful negligence. A retiring employee may draw his full annuity and pension or may draw a lesser sum during his lifetime and make one of several arrangements by which the remainder may be paid to his dependents after his death. All payments of the allowances under this act are to be made monthly and are tax and levy free."

Another law, effective March 31, 1921, provides a pension to any person who is 60 years old and has been in the State's employ for 25 years and is not entitled to a pension under any other State law. Of the two laws concerning employees of city water departments one retires on half pay at the age of 65, or if they so desire, at 60, employees who have served for 25 years. The fund is created by deducting a certain per cent from wages and

by the city's contribution of a certain per cent. The other amends the law concerning pension funds for water department employees in cities of the first class. It reduces the necessary term of service from 25 to 20 years and does not force employees leaving the service before they have served the full term to forfeit their payments.

Connecticut reduced its service requirement for State employees' pensions from 25 to 20 years. Hawaii declared all pensions paid by that territory to be free from taxation. Montana requested its Industrial Accident Board to study the condition of aged wage earners and report its recommendations for old age insurance. New York appropriated \$150,000 for its pension system and amended the law pensioning State employees. Wisconsin ordained that county pension law commissions should be appointed in every county having a population of 250,000 or over, for the purpose of collecting information concerning the operation of pension laws in municipalities, States, and counties.

FOREIGN. Argentina in February issued a law creating a national pension and subsidy fund for the permanent personnel of private companies, not railroads, engaged in the various lines of public service. The fund is principally derived from a compulsory deduction of 5 per cent from the employees' wages; a monthly contribution from the companies equal to 8 per cent of the wages of all the permanent employees; and contributions from the State. Ordinarily pensions are granted to those who are 50 years old and have served for at least 30 years.

Spain by royal decree of Jan. 23, 1921, amended the 1919 amendments which broadened the scope of the old age insurance and pension law of 1908. The decree provides compulsory old age insurance for all workers between the ages of 16 and 65 years whose annual income does not exceed 4000 pesetas (\$772 par), regardless of sex and nature of employment. The insurance fund is derived from three sources: the employers; the State; and the employees. The system is to be administered by the Institute of National Provision with the collaboration of regional or provincial institutions.

OMAN. An independent Mohammedan state in southern Arabia, guaranteed in its integrity by Great Britain and France; extending along the southern coast of the Gulf of Oman, with a coastline of nearly 1000 miles. Area, about 82,000 square miles; population, about 500,000, chiefly Arabs. Capital, Muscat, with a population of about 24,000, including the adjacent town of Muttrah. Reigning sultan at the beginning of 1921, Seyyid Taimur bin Feysal.

ONIONS, ALFRED. See **NECROLOGY.**

ONTARIO. Next to Quebec the largest province of Canada, lying between Quebec on the east and Manitoba on the west. Capital, Toronto. Area, 407,262 square miles, of which 41,382 are under water; population, 1911, 2,523,274; estimated, Jan. 21, 1919, 2,799,000. The Indians in 1911 numbered 23,044. The population of Toronto in 1919 was estimated at 499,278; Ottawa (1921), 107,137; Hamilton (1919), 108,143; London (1919), 59,100. Executive power is in a lieutenant-governor who is appointed for five years by the governor-general and who acts through a responsible ministry; and legislative power is in a single chamber of 111 members, elected for four years. At the beginning of 1921

the legislature was divided among the party groups as follows: United Farmers, 44; Liberals, 28; Conservatives, 25; Labor, 12; Independents, 2. Lieutenant-governor at the beginning of 1921, Lionel Herbert Clark; Prime Minister, E. C. Drury. See **CANADA.**

On April 18 the province voted complete prohibition by a majority of more than 25,000. The rural credit scheme went into operation in the course of the year, having local boards which worked along with a central board directly responsible to the Ministry of Agriculture. It provided for short-term loans not exceeding \$1000 and for the advance of a maximum of \$12,000 on long-term mortgages. In addition a plan was under consideration for a system of government banks.

OPEN-AIR CONCERTS. See **MUSIC, Orchestra.**

OPERA. See **MUSIC, Opera.**

OPP, JULIE (Mrs. **WILLIAM FAVERSHAM**). Actress, died, April 8. She was born in New York City, Jan. 28, 1871; and educated in a convent there. She first appeared in a minor part in *As You Like It* in London, Dec. 2, 1896, and later was for five years leading lady with Sir George Alexander. She was engaged by the Frohmans in casts with William Faversham; whom she married, Dec. 29, 1902, and with whom she starred afterwards in *The Squaw Man* and other successful plays. She herself adapted *The Squaw Man* from the play of Edwin Milton Royle.

OPPENHEIMER, Sir BERNARD. British diamond merchant, died at Stoke Poges, England, June 13. He was born, Feb. 13, 1866. For many years he had been one of the leading men in diamond exploitation. He was chairman of the New Vaal River Diamond and Exploration company and a director of other financial institutions. In 1917 he devised a scheme for training disabled soldiers in diamond-cutting, and as a result of it founded the Bernard Oppenheimer Diamond Works for disabled soldiers, which was employing in 1920 about 2000 disabled men. At the beginning of the year 1921 he was made a baronet.

ORANGE FREE STATE. A province of the Union of South Africa. Capital, Bloemfontein. See **SOUTH AFRICA, UNION OF.**

ORCHESTRA. See **MUSIC.**

OREGON. **POPULATION.** According to the report of the census of 1920, there were 783,389 residents in the State, Jan. 1, 1920 as compared with 672,765 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture, covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Corn.....	1921	66,000	1,980,000	\$1,663,000
	1920	69,000	2,139,000	2,781,000
Oats.....	1921	272,000	8,704,000	3,308,000
	1920	300,000	10,950,000	7,118,000
Barley.....	1921	70,000	2,240,000	1,120,000
	1920	75,000	2,415,000	2,415,000
Wheat.....	1921	1,067,000	24,317,000	20,669,000
	1920	1,073,000	22,427,000	29,155,000
Hay.....	1921	1,228,000	2,544,000	23,574,000
	1920	1,178,000	2,412,000	33,056,000
Potatoes.....	1921	43,000	3,870,000	4,218,000
	1920	43,000	5,580,000	4,472,000
Hops.....	1921	12,000	9,240,000	2,810,000
	1920	12,000	8,700,000	3,045,000

¹ Tons.

² Pounds.

IRRIGATION. The United States Bureau of the Census issued the accompanying table which summarizes the irrigation conditions of the State in 1920, with corresponding figures for 1910:

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Provision for a State board of aviation and for the registration of aircraft; prevention of attempt to

	Census of—	
	1920	1910
Number of all farms.....	50,206	45,502
Approximate land area of the state.....	acres.. 61,188,480	61,188,480
All land in farms.....	acres.. 13,542,318	11,685,110
Improved land in farms.....	acres.. 4,913,851	4,274,803
Number of farms irrigated.....	9,154	6,669
Area irrigated.....	acres.. 986,162	686,129
Area enterprises were capable of irrigating.....	acres.. 1,344,046	830,526
Area included in enterprises.....	acres.. 1,925,987	2,527,208
Per cent irrigated:		
Number of all farms.....	18.2	14.7
Approximate land area of state.....	1.6	1.1
Land in farms.....	7.3	5.9
Improved land in farms.....	20.1	18.1
Excess of area enterprises were capable of irrigating over area irrigated.....	acres.. 357,884	144,397
Excess of area included in enterprises over area irrigated.....	acres.. 939,825	1,841,079
Area of irrigated land reported as available for settlement.....	acres.. 98,609	(¹)
Capital invested.....	\$28,929,151	\$12,760,214
Average per acre enterprises were capable of irrigating.....	21.52	15.36
Estimated final cost of existing enterprises.....	41,585,742	39,216,619
Average per acre included in enterprises.....	21.59	15.52
Average cost of operation and maintenance per acre.....	1.19	0.75

MINERAL PRODUCTION. The production of precious metals in Oregon in 1921 is estimated by the United States Geological Survey to have been approximately 37,500 ounces of gold, valued at \$775,194; 43,120 ounces of silver, 274,400 pounds of copper, and 350 pounds of lead. Although this represents a decrease of \$242,296 in value of the gold, 48 per cent in the quantity of silver, and 88 per cent in the quantity of copper, as compared with 1920, mining in the State at the end of 1921 was far from being as depressed as these figures might indicate. The decrease was due largely to the curtailment of the operations of the Cornucopia and the Homestead Iron Dyke mines, in the eastern part of the State. The lessened activity at the Iron Dyke was due directly to the depression in the copper market.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Oregon was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The accompanying table gives a summary of the census of manufactures in 1919, with corresponding figures for 1914:

bribe baseball players or officials; constituting the State board of control the budget commission of the State; providing employment for the convicts in the State penitentiary; creating a State embalmers examining board; provision for the Americanization of the foreign-born and conferring discretionary power on school boards to employ home teachers; provision for the industrial rehabilitation of veterans of the late war.

OFFICERS. Governor, Ben W. Olcott; Secretary of State, Sam A. Koser; Treasurer, O. P. Hoff; Attorney-General, I. H. Van Winkle; Superintendent of Public Instruction, J. H. Churchill; State Highway Engineer, Herbert Nunn; Superintendent of Banks, Frank C. Bramwell; Adjutant-General, George A. White.

JUDICIARY. Supreme Court: Chief Justice, George H. Burnett; Associate Justices: Henry J. Bean, Henry L. Benson, George M. Brown, Lawrence T. Harris, John McCourt, Thomas A. McBride.

OREGON, UNIVERSITY OF. A co-educational State institution of the higher learning at Eugene, Ore.; founded in 1872. The enrollment for the fall of 1921 was 2164 of whom 1074 were men, 938 women, and 152 in the Medical School. There are two summer sessions, one held in Portland and the other in Eugene. Total enrollment 879. The faculty numbered 153 of whom

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	2,707	2,320	16.7
Persons engaged in manufactures.....	68,004	35,449	91.8
Proprietors and firm members.....	2,540	2,189	16.0
Salaried employees.....	6,905	4,431	55.8
Wage earners (average number).....	58,559	28,829	103.1
Primary horsepower.....	303,751	219,222	38.6
Capital.....	\$439,982,000	\$139,500,000	215.4
Services.....	94,986,000	26,615,000	256.9
Salaries.....	13,999,000	5,683,000	146.3
Wages.....	80,987,000	20,932,000	286.9
Materials.....	206,206,000	63,258,000	226.0
Value of products.....	366,783,000	109,762,000	234.2
Value added by manufacture (value of products less cost of materials).....	160,577,000	46,504,000	245.3

45 were women and 23 added during the year. From the State the income amounted to \$847,540 and from other sources \$84,836 was received. The library contained 107,000 volumes. The following buildings were completed:

The Woman's Building cost \$300,000, which contains the Alumni hall, and various rooms for student meetings, etc., and houses the department of Physical Education for women; the Education group including the building of the School of Education, and the practice high school building with its open air gymnasium, cost about \$145,000; Commerce Hall, erected for the School of Business Administration, and the department of Economics, which is closely related thereto, and cost about \$112,000; Susan Campbell Hall, cost approximately \$107,000, one of the two halls of residence for women. A seven-year curriculum for medical students leading to the degrees of A.B. and M.D. was established during the year and a pre-engineering curriculum of three years was also established leading to the principal engineering schools of the country. The principal gift of the year was the presentation to the Law School of the library of Judge W. V. Fenton of Portland, containing over 10,000 volumes including many rare copies.

ORGANIC CHEMISTRY. See **CHEMISTRY**.

ORNITHOLOGY. See **ZOOLOGY**.

ORTHOGRAPHY. See **PHILOLOGY, MODERN**.

ORTHOPEDIC SURGERY. The recent visit to the United States of Dr. Lorenz, the Vienna orthopedist, the crowds of cripples who sought his charitable offices, the great newspaper publicity and the hostile criticisms of some of the local medical men, brought the subject into especial prominence. The United States is the birthplace of this branch of surgery and while it pertains ostensibly to

childhood or to deformities which date from that period, the recent great war has notably amplified the number of adult cripples. But the increasing interest in orthopedics is not entirely the result of the war nor, in America, is it due to chance episodes like the Lorenz visit and its publicity. It is not peculiar either to any one country. This is shown from a study of the activities of the institution in London known as the Royal National Orthopedic Hospital. This central establishment which virtually monopolizes orthopedic activity in the metropolis and is the oldest of its character in Great Britain was founded in 1834 while the new plant was opened by Edward VII in 1909. Up to 12 years ago the attendance was 11,000; now it is 82,000 with a waiting list of 1000 children. It has to date cured or relieved 500,000 crippled children of the poorer classes. To take care of the waiting list a county branch will be established at Stanmore while a special school of Orthopedic Surgery is to be created. The patients come from every part of the country and the school training of local surgeons would enable these out-of-town patients to obtain benefit without visiting the metropolis and without delay. The importance of a single great national centre in a small country like Great Britain is obvious.

OSTRANDER, FANNIE ELIZA. Author, died at New Haven, Conn., May 4. She was born at North Haven, Conn.; and taught school for several years. She became an editor for a Chicago publishing house in 1899; and contributor of verse and prose to the magazines. She wrote especially for children, and her writings include: *The Gift of the Magic Staff* (1902); *The Little Pixies Abroad* (1905); *Little White Indians* (1907); *The Boy Who Won* (1910).

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PACKERS AND STOCK YARDS ACT. See AGRICULTURAL LEGISLATION.

PAGE, S(AMUEL) DAVIS. Lawyer, died at Philadelphia, Pa., October 11. He was born at Philadelphia, Sept. 22, 1840; graduated with honor at Yale in 1859, studied law at the University of Pennsylvania and Harvard and practiced at Philadelphia after 1864. He was City Controller, 1883-84; Assistant Treasurer of the United States at Philadelphia 1886-90 and was delegate to the Congress of Bankers and Financiers at the Chicago Exposition in 1893. He was an officer or member of prominent financial and social institutions of the State.

PAHANG. See FEDERATED MALAY STATES.

PAINTING AND SCULPTURE. INTRODUCTION. The buying and selling of old masters brought from Europe, assumed more normal proportions than had been possible for several years. Owing to the dispersal of valuable imperial and private collections in Germany, Austria, and elsewhere, many superb pieces became available to American collectors. The new revenue law brought considerable relief from the sales tax, which had been the cause of much depression in buying. High, and in some cases, record prices were reported at many of the sales for both old and modern art.

In the United States strenuous efforts have been made to promote a better understanding between the artist and his public. The Art Centre, an amalgamation of seven societies, and the League of New York Artists, have been recently incorporated for this purpose. Indications point to an increasing interest in American painting and in its purchase.

The necrology list of 1921 includes among American artists: Abbot H. Thayer, one of the foremost American figure painters, and an important contributor to the science of modern camouflage; J. Francis Murphy, perhaps our best known landscape painter; George Henry Smillie, veteran landscape painter; Ernest Wadsworth Longfellow, landscape painter and last surviving son of the poet, Henry Longfellow; also Carl Weber, Robert Kluth, James J. McAuliffe, landscape painters; F. W. Heine, painter and founder of the Heine Art School of Milwaukee; William Willett, stained glass designer; Mrs. Harry Watrous, figure painter; Frank Walter Taylor, illustrator; Lawrence C. Earle, designer; Louis Kurz, mural painter and one of the founders of the Art Institute, Chicago; Guernsey Mitchell and Meta B. Wilson, sculptors. Interesting figures in the world of art were James Gibbons Huneker, critic and writer of international reputation; James Bliss Townsend, well-known editor of the *American Art News*; Henry Reinhardt, art dealer, one of the pioneers of art in the West; and Augustus A. Healy, art patron and president of the Brooklyn Museum. In Great Britain are noted the deaths of Marcus Stone, veteran figure painter; William Strang, painter, etcher, and

engraver; Sir William Blake Richmond, figure painter; Alexander Roche and Peter Graham, Scotch landscape painters; W. Robert Colton, R. A., sculpture; Sir Frederick Wedmore, art critic and poet; and William L. Peacock, well-known art dealer. The European list includes Prof. Franz von Defregger, German historical painter; Dr. Max Dvorak, art historian, and August Gaul, German sculptor; Julius Kronberg, Swedish figure and historical painter; Axel Herman Haig, famous Swedish etcher, the teacher of Zorn; Fernand Knopff, Belgian figure painter, and Theodore Besseger, Swiss water colorist. From France we have Jean Paul Laurens, well-known painter, decorator, and illustrator; Eugene Burnand, landscape painter; and the celebrated writer and archæologist, Comte Robert de Lasteyrie. Noted names from Spain were Francisco Pradilla, foremost historical painter and former director of the Prado Museum, and Rafael Ramirez Arellano, painter, and director of the Royal Academy of Fine Arts.

PENNSYLVANIA ACADEMY. The 116th exhibition of the Pennsylvania Academy of Fine Arts upheld, much better than last year, its reputation of having probably the finest display of present day American painting of a somewhat conservative character. The 501 oils and 130 pieces of sculpture were both well hung, and advantageously placed, in the spacious rooms. The general impression was stimulating and agreeable. A number of good portraits were noted, including an early portrait by John Sargent of Carolus Duran, exceedingly handsome; President Eliot of Harvard by C. Hopkinson; two portraits of women by Ernest I. Ipsen; self-portrait by Sidney Dickinson; the decorative "Miss W." by DeWitt Lockman; two fine examples by Robert Susan, and others by Wayman Adams, Eugene Castello, and Alexander Smith. Among the figure pieces were two by Robert Henri and a nude by W. Paxton, and interiors by Frank Benson, Joseph Decamp, and A. B. Carles. The Widener Memorial prize went to Evelyn Longman's graceful "The Future." Other awards were: Temple Gold Medal to Leopold Seyffert for "The Model"; the large triple portrait group "Eleanor, Joan and Anne," by George Bellows, the Beck Medal; Charles Morris Young's "Wind on the Sound," the Seanan Medal; and Irving Couse's "Chant to the Rain God," an Indian subject in his characteristic manner, the Lippincott prize. Fine representative landscapes by Henry Ritschel, Daniel Garber, Paul King, Hayley Lever, Emil Carlsen, Gardner Symons, Ernest Lawson, and many more well-known artists were seen and enjoyed. A charming little "wood interior" by Katherine Patton received the Mary Smith prize.

ARCHITECTURAL LEAGUE. The 36th annual display of this society was held in the new wing of the Metropolitan Museum, thus affording adequate space for a very elaborate decorative undertaking. The effect was indeed striking, so

much so that the individual exhibits appeared somewhat overwhelmed by their surroundings. The medal of honor was awarded to John Gregory for his beautiful "Philomela," a seated winged figure. Other medal winners were Francis Creamer, Harold Sterner, Charles Claude, Greville Ricard, and Benjamin Moscovitz. Leo Lentelli received the Avery prize for a charming fountain figure. Other interesting sculptural exhibits were: a memorial group by Robert Aikens, several groups by Charles Keck, and a garden figure by Sherry Fry. There was an excellent showing of stained glass windows, and many mural decorations, drawings, etc., some of heroic size; including forty examples by the late George W. Breck; six by Edwin Blashfield; thirty pieces by Ezra Winter, and several by Eugene Savage. Other exhibitions included exotic screens by R. W. Chanler; garden sculpture, iron-work, batiks, tapestries, and over-mantels, textiles, brocades, potteries, designs for tiles, furniture, lamps,—in all quite the most ambitious undertaking of this kind yet seen.

NATIONAL ACADEMY, SPRING EXHIBITION. The 96th annual academy exhibition assumed its familiar appearance with the reopening of the rebuilt Vanderbilt wing in the Fine Arts Building, 254 oils, 62 sculptures, and 157 etchings and lithographs comprised the sum total, as compared with some 900 exhibits last year in the Brooklyn Museum. Owing to the omission of the Winter Academy all prizes were doubled, affording considerable interest and competition. The Altman landscape prizes were awarded to Ernest Lawson's "Vanishing Mists," which later received the Carnegie Gold Medal and prize; and Robert Spencer's "Rag Pickers." Walter Ufer's "Hunger" received the first Altman prize for figure or genre painting; and Helen M. Turner's "Flower Girl" was awarded the second. Other prize winning canvases were as follows: "Jersey Water Front" by John Folinsbee, the Carnegie prize; "In the Hills" by Leon Kroll, the Thomas B. Clarke prize; the first, second, and third Hallgarten prizes to Ross E. Moffat's "The Old Fisherman"; "October" by Felicie Waldo Howell; "Michael Brennan" by William Auerbach Levy; the Isidor Gold Medal to Howard E. Smith's "Comrades"; the Saltus Gold Medal to Charles H. Davis for "Sunny Hillside"; the Thomas Proctor and Isaac N. Maynard prizes for portraiture to Leopold Seyffert for "Portrait of Dr. Richard Harte," and R. Sloan Bredin for "Young Lady in White." The Sculpture awards were "The Offering" by Malvina Hoffman, which won the Helen Foster Barnett prize; "Head of an Italian Peasant" by Katherine Lawson, awarded the Julia A. Shaw Memorial Prize; and "Allegresse" by Bessie Potter Vonnob, awarded the E. N. Watrous Gold Medal. Twenty works were sold, including some etchings. The exhibition as a whole, lacked interest and vitality, although individual canvases possessed much merit. Among these are mentioned: "Winding Stream," Gardner Symons; "Mountain Preacher," James R. Hopkins; "Sage Brush," Carl Rungius; "Woman Sewing," William Paxton; Portrait of Wm. A. Coffin, DeWitt Lockman. Other artists exhibiting included Hayley Lever, Victor Higgins, Roy Brown, Charles Hawthorne, George Elmer Brown, Howard Giles, Albert Groll. "The Sermon on

the Mount" a large canvas by Max Bohm was an unfortunate venture.

ART INSTITUTE, CHICAGO. Each year the annual Exhibition of American Art at the Art Institute is hailed as the "best ever presented," and the thirty-fourth with 216 paintings and 84 pieces of sculpture proved to be no exception. An attendance of over 5000 on the opening day and nearly twice as many sales as the National Academy exhibition was proudly announced. "The Dancing Lesson" by Cecelia Beaux was awarded the Logan prize and medal. George Bellows received the Harris silver medal and prize for a characteristic "Portrait of an Old Lady;" and "Ave Maria," a decorative canvas by Wellington J. Reynolds, was awarded the second Harris prize. The Spalding prize went to Elmer Schofield for "Morninglight," a well-executed landscape. The first award of the Peabody prize was won by Felicie Waldo Howell for "From the Attic Window," and the French Memorial Gold Medal went to Eugene Savage for decorative designs. A carefully-modeled bust of the late Frank Duveneck by Charles Grafty received the Potter Palmer prize and gold medal, besides being purchased by the Friends of American Art for the permanent collection of the Art Institute. All the prize winning canvases were conservative in character and execution. Well-known artists, adequately represented, included: Frank Benson, Oliver Dennet Grover, John Sloan, James R. Hopkins, Emil Carlsen, Hayley Lever, John Noble, Marie Danforth Page, Gardner Symons. "The Model" by Leopold Seyffert, which won the Temple Gold Medal at Pennsylvania Academy, was purchased for the permanent collection of the Museum. The hanging was well done, and the sculpture exhibits advantageously placed. "Philomela" by John Gregory showed great charm.

NATIONAL ACADEMY, WINTER EXHIBITION. The winter exhibition was small, well-hung, carefully selected, evidently, and most uninspiring. The small "Sunshine after Rain" by Ernest Dawson formed a bright spot amidst the gloom, as did also "Windy Day" by Hayley Lever; a characteristic piece by John Costigan; "Forest Primeval" by Charles Chapman; "Wilton Hills" by Roy Brown; "Tampa" by Reynolds Beal; a marine by Frederick Waugh; and a sensitive portrait by Charles W. Hawthorne. "Superstition" by E. L. Blumenschein was awarded the first Altman Prize, and the fanciful "Sunrise" by Arthur Spear received the second. Other prize winning canvases were "The White Vase," George L. Nelson, awarded the Isidor Medal; "John Lane of London," Ernest F. Ipsen, the Proctor prize; "The Tang Jar," Dorothy Ochtmann, the Julia A. Shaw prize; "High River," John Folinsbee, the J. F. Murphy prize for the best landscape by an artist under 41, awarded for the first time. The Watrous Gold Medal went to Robert I. Aitkens for his design of the George Rogers Clark monument, and "Prairie Fire" by John M. Lore, received the Helen Foster Barnett prize. A beautiful "Portrait of a Lady" by Abbot Thayer occupied the place of honor. Among the paintings sold were "Forest Primeval" by Charles Chapman, which won the Carnegie prize; "Repose of Evening" by Ben Foster; "Fall Round-up" by Carl Rungius; "The Invalid" by Murray Bewley; and the

canvases mentioned above by Arthur Spear, Roy Brown, and Chauncey Ryder.

CORCORAN ART GALLERY WASHINGTON. The eighth biennial exhibition of American art opened with more paintings and a larger attendance than ever before. The 300 paintings exhibited represented practically all the foremost artists of the United States. Many visiting foreigners attended, giving quite an international atmosphere, especially on the opening day. The William A. Clark prizes, perpetuated last year through the generosity of the donor, were awarded as follows: first prize and Corcoran Gold Medal to Daniel Garber for "South Room, Green Street," a sunlit interior with standing figure of a young girl; silver medal and second prize to Burtis Baker for another interior, a young girl at a dressing table, the whole presenting an unusual composition; the third and fourth prizes to John Folsabee's "Jersey Waterfront" and "Quarry Wharves" by Lester Stevens. The awarding of these four prizes did not show any flight of the imagination on part of the jury.

CARNEGIE INSTITUTE, PITTSBURG. A new departure in the jury of awards was arranged for the 20th annual international exhibition at Pittsburg. Instead of ten members, the jury consisted of four, two Americans and two foreigners, with meetings in Paris, London, and New York to consider desirable exhibits. A decided limitation in the number of works shown took place, and the sales, nine paintings in all, were sadly inadequate. On the whole the exhibition was disappointing, especially in its lack of representative foreign material. All three prizes were awarded to the following American exhibits: "Vanishing Mists," a fine canvas by Ernest Lawson, already awarded the first Altman prize at the National Academy Exhibition; "Portrait of a Young Woman" by Howard Giles; and "Girl with Green Hat" by Eugene Speicher. Two English artists, R. J. Enright Moony and Sidney Lee, received honorable mention, as also did Ross Moffat for his "Old Fisherman." Of the 633 paintings submitted, 385 were hung, of which 182 were by British and European artists. The French painter, Eugène Le Sidaner, was given the one-man exhibition this year, with 25 poetic canvases on view.

OTHER EXHIBITIONS. The unceasing endeavor to stimulate the interest of the public in art is shown in the varied and increased number of exhibitions. Associations such as the New Society of Artists, the Allied Artists of America, the National Association of Women Painters and Sculptors, the American Water Color Society now have exhibitions which vie in interest with the official ones. Most interesting was the "Retrospective Exhibition of American Art" containing examples from the earliest portrait painters down to the modern extremists. Santa Fé, New Mexico, has become the centre of the western groups of painters, and the summer artist colonies, such as Gloucester, Ogonquit, Newport, Nanuet, Provincetown, Rockport, Lyme, Mystic, etc., are fast assuming such importance that art dealer, critic, and patron keep in close touch with these centres. In Lyme a beautiful new gallery has been erected, and Provincetown artists are planning new Museum galleries. Individual exhibitions of interest during the year were the Abbot Thayer and J. Francis Murphy Memorial exhibitions; a

comprehensive water color show at Brooklyn Museum; a selection of 70 Oriental, chiefly Turkish rugs from the collection of James F. Ballard of St. Louis, shown in the Metropolitan Museum; and a large collection of Lepère etchings. Of first importance was a loan exhibition of ancient Chinese paintings at a New York dealer's and from Japan came an interesting group of contemporary works, exhibited in various museums. The Brooklyn Museum took the lead in displaying the so-called "Modernists" with a large exhibition of French masters, including such men as Cézanne, Gauguin, Matisse, Pissarro, de Vlaminck, Guillaumin, and their immediate precursors, Toulouse-Lautrec, Signac; also Manet, Renoir, Monet, Degas. This was the first exhibition of ultra modern art to be sponsored by a public Museum in the United States. The Metropolitan Museum of New York followed with a smaller but more important group contrasted with representative impressionist painters. These exhibitions were the cause of much controversy, literary and otherwise. Other exhibitions of modern art came from Holland, Switzerland, and France. A fine collection of Fragonards was shown in Paris. In London, the Royal Academy adopted the policy of reducing its 1500 exhibits to 300, with some degree of success. Even staid Philadelphia had an exhibition of "modern" American art. The Society of Independent Artists held its Fifth Annual Exhibition with an ever-increasing membership and over a thousand exhibits. The great majority of these were by unknown artists, deservedly so, but there were some of good quality. A memorial exhibition of Mary Rogers' oils and water colors occupied one entire section. The untimely death of this young artist cut short a career full of greatest promise.

MUSEUM ACCESSIONS. The Michael Dreicer bequest of eighty-two objects of art, nearly one-third of which are paintings of the highest rank, was the most important bequest of the year to the Metropolitan Museum. The paintings are chiefly northern primitives, with fine examples by Memling, Rogier van der Weyden, Martin Schongauer, Piero di Cosimo, Lucas Cranach; and there are many fine pieces of Gothic sculpture. The Herrmann bequest enriches the Metropolitan Museum with six oil paintings, including a fine Gabriel Metsu and an unusual Gustave Moreau. An important collection of Persian, Chinese, Italian, and other ceramics, and a beautiful Van Dyck were bequeathed by Edmund C. Converse. Important purchases by the Metropolitan Museum include: two fine Largillière portraits; a superb landscape by Breughel the Elder; a tondo of enameled terra cotta by Luca della Robbia; several representative Roman portrait busts, two paintings of the Siennese school, and some interesting Chinese sculpture of the "Tang" period. The Chicago Art Institute was enriched by the Potter Palmer Collection of paintings, and a gift of 5000 drawings, dating from the 13th to the 19th centuries. A superb Velazquez, a life-size portrait of the Infanta Maria Theresa, was presented to the Boston Museum by a generous patron who purchased it from the late imperial collection of Vienna. Twenty paintings, including examples by Gentile Bellini, Canaletto, Frans Hals, J. F. Millet, Rubens, and the Maris brothers were bequeathed to the Brooklyn Museum by A. A. Healy, its late

president. The collections of this museum were further augmented by the William H. Hermann bequest of modern paintings, antique furniture, glass, potteries, and sculpture. By purchase the Pennsylvania Museum acquired nine examples of French impressionistic art, and the city of Philadelphia received the McFadden collection of old English masters, one of the finest in the world. Minor acquisitions were those of a Greek head of the fourth century, by the St. Louis Museum; a portrait of George Washington by Joseph Wright by the Cleveland Museum; and the purchase of several modern German paintings by the Detroit Museum. The Kansas City Museum and the Minneapolis Art Institute were the recipients of large money bequests.

In Tokyo, Japan, a large museum has been given by private donation and is being filled with examples of modern occidental art. Seventy paintings by Frank Brangwyn have already been purchased, together with many French paintings. American art has not yet been included. The famous "Carpenter Shop" by Millais was purchased by the National Gallery, London, and the Louvre paid an immense sum for the "Death of Sardanapalus" by Delacroix. The city of Paris received the Edward Tuck Collection, which was supposed to have been promised to Concord, N. H. Thirty-six paintings by the old English masters, including Gainsborough's famous "Mrs. Nisbet," were donated to the Edinburgh Museum.

ITEMS OF INTEREST. The rotunda decorations in the Boston Museum by John Singer Sargent have been completed, after five years' labor. By their simplicity of design and originality of color and execution they strike a new note in the treatment of classical subjects. Besides the paintings, the artist executed the reliefs and their moldings. A replica of the Joan of Arc monument at Rheims by Du Bois, was erected in Washington. A. Phimister Proctor completed a bronze equestrian statue of Theodore Roosevelt for the city of Portland, Oregon. The famous Alma-Tadema palace in London has been placed upon the market with rumors of an American purchaser. In Berlin the former imperial palace has been opened as a Museum of Arts and Crafts, one of the most remarkable in Europe, and the Berlin Museum has become the fortunate possessor of the Simon collection of early German art, presented by the owner. The Committee for the Diffusion of Modern French Painting in the United States donated twenty-eight more paintings for this purpose, in addition to the seventy-one already installed in various museums.

SALES. A number of important sales took place abroad, especially among private collections in Germany and Austria: such as the Worch Sale of Chinese antiques in Paris; the Davidsohn Collection of prints in Leipzig; and in Brussels the Willems collection of paintings, with fine examples of the Barbizon School. The Burdett-Coutts collection of old masters, miniatures, etc., was sold in London. The most spectacular single sale of the year was that of Gainsborough's famous "Blue Boy" from the Duke of Westminster's Collection. It was acquired by a well-known New York firm at the highest price yet paid for any one painting. "Mrs. Siddons as a Tragic Muse" by Reynolds, was acquired at the same sale and by the same dealer. Two Rembrandts from the Prince Yussupoff Collection were bought

by Mr. Widener of Philadelphia, and a superb Frans Hals portrait from the Warsaw Blue Palace became the property of John McCormack who also acquired a Romney and a Gainsborough in London. From the Duke of Buccleugh's collection to a New York collector comes "Tarquin" and the "Cumaen Sybil" two masterpieces by Mantegna, and Mr. Michael Friedsam, also of New York, purchased "The Savior" by Albrecht Dürer, and "Rest on the Flight into Egypt" by Quentin Matsys. A beautiful Lawrence, "Miss Harriet Day," was sold to an American collector. Private collections in the United States are rapidly becoming the foremost in the world.

PALESTINE. The new state of Palestine under British mandate and serving as a national home of the Jews was organized in 1920. The annual report of the British High Commissioner, Sir Herbert Samuel, presented to Parliament in August, 1921, is the basis for most of the information contained in the following paragraphs.

POPULATION. The population was estimated in 1921 at about 700,000 of whom 235,000 were in larger towns and 465,000 in the smaller towns and villages. The Mohammedan element made up about four-fifths, mostly of mixed races, but including a small proportion of Bedouin Arabs. The Christians numbering about 77,000 were chiefly members of the Orthodox Church, the minority belonging to the Latin or the Uniate Greek Catholic Church or Protestant sects. The Jews numbered about 76,000 most of whom had entered the country during the last forty years. Before 1850 there were but very few Jews in Palestine and these had come as religious pilgrims. The Russian persecutions in the latter part of the nineteenth century increased the Jewish immigration and agricultural colonies were founded by them. These colonies flourished and drew the attention of the Jews throughout the world; and many societies for the promotion of Jewish colonization in Palestine were formed. The colonies practiced agriculture according to modern methods, developing orange culture and making and exporting wine. The language of the non-Jewish population is Arabic. The Jews have revived the Hebrew language which with new words added from contemporary life is used as the language of the daily speech by most of the younger generation and many of the elders. It is the language of instruction and the Jewish newspapers are published in it. The Zionist movement was approved and supported by the British government which in November, 1917, declared that it would do its best to cooperate in the movement to make Palestine the national home of the Jews. After the British forces had occupied the country under General Allenby the Zionist Commission was sent there. Its work was endangered by the hostility of the Arabs who began a campaign against the Jews which led in April to riots in Jerusalem resulting in the killing and wounding of a number of Jews. In this state of affairs the British government set up a civil administration in the country with the programme of fair play to the Arabs and the development of Zionist aspirations. There was difficulty in securing the necessary money for public works, etc., on account of the delay in settling the international status of the country and for a time development and immigration

was slow, but after the opening of the ports to immigration in August, 1920, a little over 10,000 immigrants arrived, chiefly Jewish, and of these 8084 entered the country under the Zionist organization. There was a suspension of all immigration in May owing to the disturbances in Jaffa. (See below under *History*.) The ports were again opened in July. It was required for entry into the country that a person should show a certificate proving that he belonged to one of certain definite classes, namely, persons of independent means contemplating permanent residence; members of professions which they intended to pursue; wives and persons wholly dependent on residents; persons having definite prospects of employment, etc. Among the newcomers as well as among the prewar residents a small group of Bolsheviks was active in propaganda and certain members of it were identified and deported.

EDUCATION. Among the Moslems illiteracy prevails. The administration during the year was endeavoring to induce the people to co-operate in providing means of education to the extent of supplying suitable buildings in villages where schools were needed. The salaries of teachers and other costs of the service were paid by the government. New schools were reported to be rapidly opening. In addition to the schools developed in the regular way there were a number of voluntary schools organized by associations outside the country.

PRODUCTION. The productive portion of the country is the narrow strip of valley land running along the Mediterranean from Gaza to Haifa. The richest region is in the neighborhood of Jaffa which has been developed by Jewish colonists who have carried orange cultivation in that district to a high degree of production. An agricultural department had been already formed under the military administration and it comprised in 1921 a considerable personnel who had charge of matters pertaining to plant diseases and insect pests, to the fishery service, forestry, meteorology, etc. Considerable areas were under cultivation in 1921 and stock-raising was reported as showing remarkable improvement. A survey department was created; land settlement courts were established; and a land ordinance was passed designed to prevent land from being kept from productive use by speculation. The department of Commerce and Industry was making efforts to promote economic development, and chambers of commerce were established in the chief towns. The prices of commodities were falling but still remained high in comparison with those of Egypt. The restrictions upon the import and export trade were removed with the exception of the prohibition of the exportation of live-stock and certain police regulations in respect to the importation of arms, injurious drugs, etc. The chief mineral productions are: Sulphur, iron, coal, and salt. The last-named is extracted from the water of the Dead sea. Oil has been found in the vicinity of the Dead sea, but had not been exploited in 1921. Bitumen is also found.

FINANCE. It was reported in 1921 that the civil administration had been maintained mainly out of the returns from the local revenue without calling upon the British treasury for any grants in aid. Certain small taxes regarded as oppressive were abolished. Import duties on building materials and live stock were reduced from 11

per cent to 5 per cent. The octroi was removed and in place of it an additional import duty ranging from 1 per cent to 2 per cent on certain articles was levied. The tobacco monopoly established by the Turks was abolished with the result that the price to the consumer was greatly lowered and the manufacture by private enterprise on a considerable scale was indicated. The government had taken over the railways from the military authorities in October, 1920, and after that their budget was included in that of the government. Palestine was charged with her share of the debt of Turkey before the war.

TRANSPORTATION. The railways have been placed under the control of the government which through its railway department operates the Sinai military railway between the Suez Canal and the Egyptian-Palestine frontier. The whole system has a length of about 1000 kilometres. Improvements were made during 1921 and the main line was strengthened. The branch from Jaffa to Ludd Junction was turned from narrow gauge into broad.

DEFENSE. In 1921 the garrison had been reduced to 5000 active troops. The cost of the military establishment devolved on the British government and was placed at £2,500,000 a year. A police force maintained by the administration and recruited from among the people, had a strength of 1300 and in addition a force of gendarmes numbering 500 was being organized.

GOVERNMENT. The government is in the hands of the High Commissioner who acts through the heads of the several departments. An Advisory Council was created in October, 1920, consisting of 10 members nominated by the High Commissioner, including 4 Moslems, 3 Christians, and 3 Jews, and 10 members of the administration, its functions being consultative. Turkish law is applied wherever possible. A judicial system had already been established by the military administration and was continued under the civil administration. The High Commissioner, the heads of the central departments, and the district chiefs were British officers, and in the judiciary, the four district courts trying the most serious cases were British but twelve native members in each court served in an advisory capacity. At Jerusalem there was a court of appeal with a British chief justice. High Commissioner in 1921, Sir Herbert Samuel.

HISTORY. During the first week of May 1, anti-Jewish riots took place at Jaffa, Chederah, and Pitha Tikvah, resulting in the killing of 88 persons and the wounding of 238. This was followed by an order of the Palestine government suspending Jewish immigration. The Arabs had presented grievances against the Jews of Palestine in the previous year, and the riots at Jaffa as well as certain disorders at Easter time in Jerusalem were the result of a political campaign to stir up the people. This campaign arose from the demand of the Arabs for a united Syria and their preference for Turkish rule rather than that of the western nations. This was the point of view of the well-to-do class among the Arabs and they also feared that the immigration of the Jews might raise the standard of the Arab laboring class. Another class opposed to the Jews was that which favored French rule over Palestine. One of the arguments of the Arabs was that the Jews if admitted would gain the highest places

in trade, industry, and politics. The real effect, however, of Jewish settlement was believed by some observers to be advantageous to the Arabs, as tending to set a higher standard of civilization and it was said that economic progress had already been made among them owing to the example set by the Jews, and that they were already improving their judicial methods and their education after Jewish models. The development of the country was checked to some extent by the anti-Jewish riots above mentioned. They were suppressed by the troops who suffered a considerable loss, and martial law was enforced for some weeks over the disturbed region. The British High Commissioner suspended immigration from southeastern Europe. Several of the agitators were prosecuted by special courts, and a commission of inquiry was appointed under the British chief justice of Palestine. In July a delegation representing Moslem and Christian interests was sent to England for the purpose of laying their grievances before the authorities. On September 14 the Jewish Congress at Carlsbad passed a resolution urging that the principles laid down by the British government in 1917 in respect to furthering the interests of the Jewish people while recognizing the civil and religious merits of the non-Jewish elements should be carried into effect. At the same time the Congress voted a budget of £1,500,000 for the development of the country in respect to agriculture and education. Disappointment among the Jews was caused by the publication of the text of the British mandate and the revelation, that, while Great Britain as a mandatory power expected to establish a national home for the Jewish people, it did not intend to create a Jewish state. It was its intention to insure political, racial, and religious liberty. The British Colonial Secretary, Mr. Winston Churchill, outlined the government's policy in June. In this statement assurance was given that the rights of the Arab minority would be protected and the interests of the French in Syria, respected.

PALMGREN, SELIM. See *MUSIC, Artists, Instrumentalists.*

PANAMA. A state of Latin America, situated between Colombia and Costa Rica; previous to Nov. 3, 1903, a department of Colombia. Capital, Panama.

The area of the eight provinces into which the country is divided is estimated at 32,380 square miles; population, according to the census of 1920, 401,428 exclusive of Indians, an increase of 33 per cent over that of 1910. For distribution of population by provinces, see preceding *YEAR BOOK*. Chief towns: Panama with a population of 61,369; Colon, 26,076. Education is compulsory between the ages of seven and fifteen. The government schools in 1917 numbered 398 with 22,000 pupils. There is a university, known as the National Institute.

The soil is fertile, but only about three-eighths of the surface are occupied, and of that only a small portion is cultivated by modern methods. The chief products are: Caoutchouc, coffee, cocoa, coconuts, cabinet woods, medicinal plants, sugar, tobacco, and live stock. The timber resources are especially rich. The commerce exclusive of the Canal Zone in 1919 was according to a British authority as follows: Imports, £2,281,376; exports, £785,711. Of the imports

about 82 per cent came from the United States. The two-year budget of 1919-21 was estimated as balancing at 7,220,470 balboas (a balboa equals one dollar in United States currency). The foreign debt at the beginning of the year according to British sources was £556,600. The ports of Panama and Colon are connected by railway and there are branches extending from Pedro Miguel to Las Cascades and about 140 miles of track in the province of Bocas de Toro, owned by an American fruit company. This and other lines were being extended. Both sides of the isthmus are in communication by several regular steamship lines with European and American ports.

Under the constitution adopted, Feb. 13, 1904, and amended, Dec. 26, 1918, executive power is in the hands of a president, elected by direct vote for four years and ineligible for the succeeding term; and legislative power is in a chamber of deputies of thirty-three members which meets biennially. President at the beginning of 1921, Felix Belisario Porras.

HISTORY. Costa Ricans invaded Panama territory at Coto, February 28, but were captured in the presence of American marines. The Panama assembly in extraordinary session took defensive measures, March 1. On March 4, Costa Ricans occupied the town of Guabito. Meanwhile the government of Panama had accepted the mediation of the United States which had been offered under the Wilson administration, and on March 5, Secretary of State Hughes sent notes in respect to a peaceful settlement to the governments of Panama and Costa Rica. Costa Rica accepted the award which had been rendered by Chief Justice White, and addressed a note on March 7 to Secretary Hughes, promising to withdraw the troops. On March 7 Panama refused to accept the boundary line defined by Chief Justice White, but promised Secretary Hughes to withdraw their troops from Coto. On March 14 the American Secretary of State offered to rectify the boundary line between Panama and Costa Rica, and on March 17 asked Panama to accept the White boundary so far as the Atlantic end was concerned, while a commission should determine the remainder of the line. On March 19 in reply to an appeal from President Porras of Panama President Harding declared that the White boundary award must remain. On April 13 the Panama government restated its objections to that award. On May 2 the United States government sent an ultimatum to Panama, demanding an acceptance of the White boundary. On July 25 the Panama government asked that the dispute be referred to The Hague Court. An emphatic note having been sent from the United States secretary of state, Panama ordered the evacuation of Coto which had been awarded to Costa Rica by the White decision. On August 24 Chief Justice Taft of the United States Supreme Court, appointed surveyors to review the Anderson-Porras agreement concerning the frontier. A treaty between the United States and Colombia finally fixed definitely the status of Panama, whose independence was definitely recognized by Colombia in that instrument. See *COLOMBIA*.

PANAMA CANAL. Traffic through the Panama Canal in 1921 exceeded that of 1920, and the tonnage of cargo carried in the fiscal year ended

June 30, 1921, was approximately 11,600,000 tons as compared with 9,374,499 in the fiscal year 1920. The year 1921 was a record year for American shipping going through the canal, as it amounted to 5,162,000 tons, or more than in any previous year by 615,888 tons. Next place was held by British ships with a total of 3,738,250 tons thus exceeding their previous record year of 1917. Japan stood third in the test with 758,000 tons which was 32,270 tons more than ever before, while Norway ranked fourth with 637,880 tons, a less amount than in 1918. The other 89 per cent of the total commerce passing through the canal was carried by ships of the four maritime nations mentioned.

The number of commercial ships which passed through the Panama Canal in the calendar year 1921 was 2783, an average of 232 a month, or 7.6 per day. In 1920 the number was 2814, averaging 234.5 a month. The decrease was 31 ships for the year.

In net tonnage and tolls 1921 exceeded 1920. Net tonnage amounted to 11,435,811 tons, Panama Canal measurement, as compared with 10,378,265 tons in 1920. Tolls aggregated \$10,325,718.02 in 1921 compared with \$10,295,362.21 in 1920.

The cargo carried through the Canal in 1921 amounted to approximately 10,708,338 tons of 2240 pounds, or 527,771 tons less than the 11,236,119 tons that make the transit in 1920.

The decrease in the number of ships was 1.1 per cent. That in cargo was 4.7 per cent. The increase in net tonnage was slightly over one-half of 1 per cent, and that in tolls about three-tenths of 1 per cent.

Senator Borah's bill providing for exemption from tolls by American coast-wise shipping passing through the Panama Canal was under discussion in the summer and it was decided to take a final vote on it in October, but later, in view of the approaching Disarmament Conference, it was proposed that it should be postponed. It was believed that the measure was offensive to Great Britain and there were many prominent Americans who regarded it as a violation of the Hay-Pauncefote treaty.

PANAMA CANAL ZONE. The strip of land on each side of the canal route, granted by Panama to the United States in the treaty of Nov. 18, 1903. The area, comprised within the five mile limits on each side of the canal, is 441½ square miles, of which 106½ are taken up by Gatun Lake. Civil population, June 30, 1920, 21,650, of whom 8514 were Americans. The zone is a military reservation under the command of a governor, appointed by the President of the United States. Governor at the beginning of 1921, Brigadier-general Chester Harding; succeeded by Colonel Jay J. Morrow, appointed, March 28.

HISTORY. On October 6 the report of the Zone Commission appointed to investigate the labor situation and methods of administration was published. It recommended that the Governor of the Canal Zone should ignore the labor unions and deal only with committees of employees; favored the open-shop policy and the employment of tropical native labor. It recommended that free housing, heating, lighting, etc., be discontinued and that the canal be operated independently of the railway and steamship lines. The recommendations of the report were attacked by Samuel Gompers, President of the American

Federation of Labor. The question of canal tolls came up again in accordance with the plank of the Republican platform concerning exemption of American coastwise vessels and a bill was proposed by Senator Borah according to this exemption. It was passed, October 10, by vote of 47 to 37 divided according to parties as follows: 35 Republicans for and 17 against, 12 Democrats for and 20 against. See UNITED STATES.

PAPER. In 1921 American and Canadian paper and pulp mills, were seeking to return to normal conditions and all things considered, the industry was in as good condition as could be expected. American manufacturers and users of paper were interested in the tariff discussions, the former advocating protection for both pulp and paper, while the latter, especially the consumers of news print, urged low duties or the free list. An encouraging feature of the paper industry in 1921 was that the newspapers were printing larger papers and the advertising was such as to make publication on the whole profitable. In this field at least there was not the anticipated falling off. The consumption of standard news print paper which normally was about 92 per cent of the total output of news print, increased in 1920 only about 5 per cent over the record year of 1919. In 1921 which was a year of general depression, the decline in consumption from 1920 was only about 2 per cent in this field, and actually amounted to 3 per cent more than in 1919. In 1920 production had increased 10 per cent over 1919, but the consumption was only 5 per cent more than in that year.

The American paper and pulp industry had shown a remarkable development, the output increasing from 4,216,700 tons of paper in 1909 to 7,334,614 tons in 1920. The distribution of this last amount is of interest and was as follows: Board, 2,313,449 tons; news print, 1,511,960 tons; book, 1,104,464 tons; wrapping, 1,043,812 tons; fine papers, 389,322 tons; felts and building, 366,940 tons; tissue, 177,441 tons; hanging, 113,024 tons; miscellaneous, 313,387 tons. The value of the more important products was roughly estimated at \$200,000,000 for board, \$150,000,000 for news print, and \$220,000,000 for book papers.

In 1921 the total output of paper in the United States was estimated at 5,300,000 tons as compared with 7,334,614 tons for 1920.

In Canada the 1921 production of news print was 812,727 tons, as compared with 875,696 in 1920, and the shipments were 807,972 tons. The production of pulp for sale in all chemical pulp mills in Canada in 1921 was estimated at 617,496 tons, comprising 148,400 tons of Kraft and 469,096 tons of sulphite. The production and shipments of sulphite were reported as follows:

	Production	Shipment
News.....	253,566	50,253
Easy bleaching.....	86,831	69,690
Bleached.....	85,498	82,895
1920.....	425,895	202,838
1921.....	600,685	380,709

The American paper and pulp industry was apprehensive of foreign competition. During 1921 the imports into the United States were of greater value than in previous years and the exports of Germany and Scandinavia were feared unless restricted by tariff rates.

PAPUA. A territory in the southeastern part of the island of New Guinea, comprising also all the groups of small islands between 8° and 12° S. latitude, and 141° and 155° E. longitude; formerly known as British New Guinea and constituting a British colony, but transferred, Sept. 1, 1906, to the Australian government. Total area, 90,540 square miles, of which about 87,786 are on the island of New Guinea; population estimated, June 30, 1919, at 250,000 Papuans; 971 Europeans; and 316 colored, other than Papuan. Capital, Port Moresby. Other ports of entry: Samarai, Misima, and Daru. The chief products are: Cocosnats, rubber, sisal hemp, sago, valuable timber, gold, and copper. Agriculture has not been developed, but gold mining has recently made great progress. Petroleum resources have been reported. Large steamships ply between Sydney and Port Moresby. During the year 1920 the increase in exports and revenue was large, and the returns were generally of an encouraging nature. The revenue amounted to nearly £80,000 as compared with £61,000 for the preceding year. The value of imports was £422,741 as compared with £258,112, and exports amounted to £270,481, as against £176,247 for 1919. There was a great increase in the amount of copra exported, which totaled 94,080 tons as compared with 2598 tons for the year 1919. The abnormally low price now being paid for copra seriously affected the total value of exports. Pearls found showed a decrease in quantity, but an increase in value, which was £25,577 as against £21,550 in 1918-19. Osmiridium, which has been found in Papua for some years in small quantities, was recorded for the first time as an export, the amount exported being 88.5 ounces. Gold exports also showed a slight increase.

PARAGUAY. A republic of South America, situated between the Paraguay and Alto Parana rivers and between 20° 16' and 26° 31' S. latitude and 54° 37' and 62° W. longitude. Capital Asuncion.

AREA AND POPULATION. The area of Paraguay proper has been variously estimated at from 65,000 to 75,673, but the so-called Chaco, that is to say, the region between the rivers Paraguay and Pilcomayo, which is in dispute with Bolivia, has an area of over 100,000 square miles. Population of Paraguay proper, estimated in 1917 at about 1,000,000, exclusive of Chaco Indians, numbering about 50,000. The population is largely of Guarani Indian stock. The number of foreigners in the country was placed at 60,000 in 1917. Asuncion, the largest city (founded in 1537), had a population, Sept. 30, 1920, of 99,836. Other cities are Villarrica with 26,000; Concepcion and Carapegua with 15,000 each. Catholicism is the state religion. Education is free, and, so far as schools are available, compulsory. No later figures for education were available than those given in the preceding YEAR BOOK.

PRODUCTION. The soil is fertile and well adapted to the cultivation of sub-tropical products. The chief occupations are agriculture and cattle raising, and manufacturing is on a small scale including mainly articles for local consumption. Sugar production, however, is important and in 1920 reached its highest record, considerable quantities being exported of which Uruguay took the larger part.

COMMERCE, ETC. The trade for Paraguay for 1920 was as follows: Exports, \$14,959,175 in Argentine gold; imports, \$13,118,504 in Argentine gold; as compared with \$14,816,117 and \$15,835,970, respectively, in 1919. The increase since 1913 was exceedingly large, the exports in that year being \$5,630,929 and the imports \$8,119,997. The following table shows the value of exports by countries for 1913, 1919, and 1920:

Country of destination	1913 Pesos	1919 Pesos	1920 Pesos
Argentina.....	3,516,417	8,261,687	8,526,227
France.....	34,091	1,332,405	1,794,604
United States.....		644,182	1,393,250
Spain.....	25,974	1,568,330	1,217,671
Uruguay.....	694,622	834,973	1,258,682
England.....	163	690,821	313,958
Others.....	1,359,662	1,423,719	454,783
Total.....	5,630,929	14,816,117	14,959,175

The chief countries from which products were imported in 1920 were Argentina, United States, England, which contributed about 85 per cent. It should be noted that a large part of the goods credited to Argentina were not of Argentine origin but manufactured in other countries and reexported. In 1913 the largest part of the imports were from England, Germany, and Argentina, in that order. The following table shows the value of the chief imports from the United States in 1920:

Article	Pesos
Groceries and foodstuffs.....	86,052
Hardware, cutlery, machinery, motor vehicles, tools, etc.....	1,790,234
Electrical goods and lighting fixtures.....	68,891
Firearms and ammunition.....	86,483
Chemicals, drugs, oils, and paints.....	451,352
Haberdashery, novelties, paper and paper goods, and perfumery.....	83,296
Clothing, ready-to-wear.....	98,294
Textiles, table and bed coverings.....	375,494

The budget estimates for 1920 according to British authority were: Revenue, £1,069,530; expenditure, £1,082,846.

COMMUNICATIONS. The river affords the main outlet for the foreign commerce of the country, only a small part of which is ordinarily carried by the railway. The main line is the Paraguay Central railway which connects with the Argentine Northeastern railway. In fifty years railway construction amounted only to 300 kilometres, but in 1921 the Paraguay Central railway was planning various branch lines which promised to open up some of the richest and most densely populated parts of the country.

GOVERNMENT. Executive authority is vested to a president who acts through a responsible ministry of five members; and legislative authority, in a congress of two houses, namely, a senate and a chamber of deputies, both elected directly by the people. President at the beginning of the year, Manuel Gondra. There was a revolutionary movement in the autumn which during the first week of November resulted in his resignation and he was succeeded by Eusebio Hyala.

PARDO BAZAN, EMILIA, COUNTESS OF. Spanish novelist, critic, and pioneer in the Spanish woman suffrage movement, died at Madrid,

May 12. She was born at Coruña, Sept. 16, 1851; and married Señor D. José Quiroga in 1868. She won a prize at an early age for an essay on an eighteenth century Spanish writer, and after travels in Europe founded a review at Madrid. Her leading novels show the influence of Zola, and deal with the decadence of the aristocracy of Spain. The two that have been most praised are: *Los Pazos de Ulloa* (1886); and *La madre naturaleza*, published in 1886 and 1887, respectively. Before that she wrote *El cisne de Vilamorta* (1885). Besides novels, she wrote essays on realism and naturalism in the modern novels and various other critical works. In 1910 she was appointed a member of the council of public instruction. The list of her writings other than those above mentioned includes the following: *Pascual López; Un viaje de novios; La tribuna; La dama joven; Insolación; Morrina; Una cristiana; La prueba; La piedra angular*; essays and critical treatises, *San Francisco de Asís; De mi tierra* (1888); *El Padre Luis Coloma; Pedro Antonio de Alarcón; La revolución y la novela en Rusia* (1887); *La cuestión palpitante* (4th ed., 1891), rhetorical essays dealing with realism and naturalism in the modern novel; *Polémicas y estudios literarios*, a supplement to the matter contained in *La cuestión palpitante*. The first play that she wrote, *Verdad*, was published in 1906. Subsequent writings were: *Misterio* (1911), a novel; *Belcebú* (1912); *Cuentos Trágicos* (1913).

PARK, Sir MATTHEW. South African publicist. died at Capetown, March 15. He was editor of the *Cape Times* and the chief correspondent of the *London Times* in South Africa. He was born at Cumbernauld in 1862 and educated at the Glasgow high school and University, winning high distinction in the latter. After graduation he went into journalism, first in Scotland and later in India where he became assistant-editor of the *Pioneer*. He went thence to Capetown where he edited the *Cape Times*, which he succeeded in bringing to a position of great influence. He played a moderate part in the negotiations between the divergent political elements which preceded the Union, advocating a policy of generosity toward the Dutch. He was a supporter and adviser of both Botha and Smuts during their premierships.

PARK COLLEGE. A non-sectarian institution of the higher learning at Parkville, Mo.; founded in 1875. The enrollment for the fall of 1921 was 427 of whom 115 were in the preparatory department. The faculty numbered 21. The productive funds were \$800,000 and the income \$43,000. The library contained 27,500 volumes. During the year a new building, Science Hall, was completed. President, F. W. Hawley, D.D.

PARKHURST, FREDERIC HALE. Lawyer and Governor of Maine, died, January 31. He was born at Unity, Maine, Nov. 5, 1864; educated at the public schools of Bangor and studied law at the law school of Columbian University, Washington, D. C. He was admitted to the bar of Maine in 1887, and thereafter practiced law in Bangor. He was several times member of the Maine House of Representatives; chairman of the Republican State Committee from 1912 to 1915; and elected Governor of Maine for the term ending in 1923.

PARKS, NATIONAL. The year ending June 30, 1921, was remarkable for the heavy tourist travel,

surpassing even 1920 which had been the most successful year down to that time. The visitors to the national parks in 1921 numbered 1,007,335 as against 919,504 in 1920. The visitors to the national monuments numbered 164,461 in 1921 as against 138,951 in 1920. An important event of the year was the holding for the first time of the National Conference on State Parks. This met at Des Moines, Iowa, January 10-12, and representatives of more than half the States were present. The purpose of the movement was to preserve places in the various States and maintain them under State control as centres of health, recreation, and education. The meeting pronounced in favor of a policy that should make ample provisions to this end, until eventually there should be public parks within immediate access of all the people of the country, and it recommended: The appointment of a special commission to study the park laws of the several States; that further national, State, county, and municipal forests should be established; that all public parks now or hereafter acquired should be considered as forever dedicated to the people; that constant effort should be made to foster a sentiment favorable to the preservation of wild life; that similar meetings should be held in the future, and in particular that another conference on parks should be held in 1922. As a result of the conference several States, including Washington and Virginia which had no State parks, introduced bills providing for them in their legislatures; Wisconsin set aside a tract of 7800 acres as the Northern Lakes Park; California appropriated \$300,000 for the purchase of Redwoods in Humboldt and Mendocino Counties; and New York established Allegheny Park with about 50,000 acres in Cattaraugus County. The Hawaii National Park was formally dedicated, July 9, on the rim of the crater, Halemaumau, with appropriate ceremonies, and addresses from native and visiting officials. The park contains the two great active volcanoes, Kilauea and Mokuaweoweo. New projects proposed during the year in bills presented to Congress favored the establishment of the following national parks: A national park in Utah; Mammoth Cave, Kentucky; Mt. Katahdin, Maine; Mississippi Valley, Iowa and Wisconsin; Mt. Baker, Washington; Battell, Vermont; Killdeer Mountain, North Dakota; Roosevelt National Park, North Dakota. The most important of these seemed to be the proposal in respect to Mammoth Cave which had been long under consideration. The area containing this natural curiosity was still in private hands under the terms of a will, requiring the land to be held in trust until the death of the last named heirs when it was to be sold at public auction in its entirety. There were only two of the heirs surviving in 1921, and they had already reached an advanced age. Proposals for national monuments included: The remarkable tract containing Palm Canyon, California, the largest of the three canyons south of the Village of Palm Spring, Washington, and with native palms growing along the shores of the stream for a distance of ten miles; Castle Gardens, a deep gorge of remarkable scenic interest near Salida, Colo.; Lehman Cave, an extensive cave near Baker, Nev.; Mystic Maze, a small area containing monuments of early Indian or other prehistoric peoples, thirteen miles southwest of

Needles, Calif.; Picture Rocks, a pile of rocks inscribed with Indian designs, fourteen miles west of Tucson, Ariz.; The Valley of the Moon, an area of from 1000 to 1200 square miles, containing sixty-three extinct volcanic craters, many ice-caves, etc., lying between the main line of the Oregon Short Line Railway and the State highway from Hailey to Arco.

While the national parks comprise only one-third of one per cent of the country's area, the complete protection afforded the wild life within their boundaries insures a constant supply. The main difficulty arises when severe winters drive out the animals in search of food in States whose too liberal game laws permit their slaughter, as happened in the case of the Yellowstone elk in 1920. A milder winter did much to restore the herds in the Yellowstone, which during the past few years has been a distributing centre for elks and other animals sent for propagation purposes to many of the States and to Canada. A game patrol was established in Mt. McKinley. The experiment was made of introducing elk in Yosemite Park. Progress was made in the preservation of the great redwoods in northern California, and the measure above mentioned appropriating funds for their purchase, received the hearty support of the people of California.

PASADENA MUSIC AND ART ASSOCIATION. See Music, *General News*.

PATTEN, C. G. See NECROLOGY.

PAVEMENTS. See ROADS AND PAVEMENTS.

PAYNTER, THOMAS H. Former senator from Kentucky, died at Frankfort, Ky., March 8. He was born in Lewis County, Ky., Dec. 9, 1851; studied at Centre College, Kentucky; admitted to the bar in 1872; and afterwards practiced at Frankfort, Ky. He was a member of Congress from 1889 to 1894, after which he was judge of the Kentucky court of appeals until 1906. From 1907 to 1913 he was Senator. In politics he was a Democrat.

PEABODY MUSEUM. Extensive field work was carried on by this institution of Harvard University during 1921. The expedition to middle America, under Dr. H. J. Spinden visited the lesser known ruins in northern Yucatan, and continued the investigations into northern Guatemala. This was planned as a preliminary entrance into a large unexplored area. S. J. Guernsey continued the Museum explorations in northeastern Arizona and was successful in discovering important additional material and data relating to the Basket-makers and Post-Basket-makers, the earliest known occupants of this region. Explorations were carried on in France and Belgium by Dr. Charles Peabody, and much new material was obtained. Two fine examples of house-posts, about sixteen feet high, were collected by Dr. Newcombe from the Kwakiutl Indians of British Columbia. A large shipment of ethnological material from Southern Cameroon was added to the extensive collection obtained for the Museum by George Schwab, an associate in Anthropology. The Rev. E. Carroll Condict gave the Museum some very interesting specimens which he collected from the Burmese and Southern China, while stationed there as a missionary near Thayetmayo, Burma. The Museum also received numerous gifts of collections and specimens from all parts of the world. Three Museum papers were published during 1921: *A Possible Solution of the Number Series on*

Pages 51 to 58 of the Dresden Codex, by Carl E. Guthe; *Basket-maker Caves of Northeastern Arizona*, by S. J. Guernsey and A. V. Kidder; and *A Maya Grammar*, by Alfred M. Tozzer. Volume three of the *Harvard African Studies* was expected from the press soon. A report on the *Museum Explorations at Chichen Itza, Yucatan*, was in course of preparation by Professor Tozzer and Dr. Spinden, to be issued as a Museum Memoir.

PEACE AND ARBITRATION, INTERNATIONAL. See INTERNATIONAL PEACE AND ARBITRATION.

PEARLS, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

PEARSON, Sir ARTHUR. British journalist and publisher, died as a result of an accident in his home in London, December 9. Several well-known British periodicals were published by him. He was born near Wells, England, Feb. 24, 1866, and educated at Winchester. In 1888 he was a fellow clerk with Alfred Harmsworth, afterwards Lord Northcliffe, in the office of *Tit Bits*, published by Sir George Newnes and he and Harmsworth began undertakings on their own account as a result of their experience. These ventures were successful and Pearson founded a series of magazines and newspapers, among others *Pearson's Magazine* and the *Daily Express*, finally becoming the proprietor of a chain of newspapers and magazines. Though a successful newspaper proprietor, his publications never attained the great popularity of the Northcliffe papers. Despite the loss of his eyesight, he continued in active work, priding himself on his ability to overcome this defect. He wrote a book on the subject, *Victory over Blindness* and was president of the National Institution for the Blind.

PECK, HENRY ALLEN. Astronomer and educator, died at Syracuse, N. Y., November 17. In the summer preceding his death he was appointed Vice-Chancellor of the University. He was born at Mexico, N. Y., May 4, 1863, graduated at Syracuse University in 1885 and studied in Germany. After teaching in the common schools and in a private school at Williamsport, Pa., he became instructor of astronomy at Syracuse University in 1887. After 1893 he was professor and after 1917 Dean of the College of Liberal Arts. He was a frequent contributor to technical journals and a member of important scientific bodies in his field of work.

PECK, TRACY. University professor, died at Rome, Italy, November 24. At the time of his death he was emeritus professor of Latin at Yale University. He was born at Bristol, Conn., May 24, 1838, graduated at Yale in 1861 and studied at the universities of Berlin and Bonn. After holding a tutorship at Yale he became professor of Latin at Cornell, 1871-80 and from 1882-1908 was professor of Latin at Yale, in the latter year retiring with the status of emeritus professor and after 1909 living in Rome. He was the editor of important college Latin texts and contributed largely to the learned periodicals.

PENANG. One of the Strait Settlements (q. v.).

PENNIE, JOHN C. Patent lawyer, died in New York City, December 23. He was born at Albany, N. Y., in 1858, graduated at Union College in 1877 and became an examiner of patents in the United States Patent Office in 1880. He afterwards went into the practice of patent law, first in Washington and then in New York

where he became prominent as a patent law expert. He was an adviser of the members of the Peace Conference in 1919 in respect to patent law provisions of the Treaty.

PENNSYLVANIA. POPULATION. According to the report of the census of 1920, there were 8,720,017 residents in the State, Jan. 1, 1920, as compared with 7,665,111 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	1,589,000	76,272,000	\$41,950,000
	1920	1,556,000	70,020,000	70,020,000
Buckwheat.....	1921	225,000	5,175,000	3,881,000
	1920	232,000	4,176,000	5,011,000
Oats.....	1921	1,238,000	35,283,000	15,877,000
	1920	1,210,000	47,190,000	31,145,000
Wheat.....	1921	1,365,000	23,850,000	24,566,000
	1920	1,368,000	22,700,000	38,590,000
Rye.....	1921	188,000	3,008,000	2,858,000
	1920	186,000	2,976,000	4,166,000
Tobacco.....	1921	42,000	61,320,000	8,830,000
	1920	43,000	64,930,000	12,986,000
Hay.....	1921	3,048,000	3,658,000	62,046,000
	1920	2,961,000	4,142,000	97,188,000
Potatoes.....	1921	251,000	21,586,000	28,709,000
	1920	246,000	28,290,000	35,080,000

¹ Pounds.

¹ Tons.

MANUFACTURES. The Bureau of the Census reported the general results of the 1920 census of manufactures, covering the year 1919, for the State of Pennsylvania. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The following table gives a summary of the census of manufactures of 1919, with corresponding figures for 1914:

	Census—		Per cent of increase ¹
	1919	1914	1914-19
Number of establishments.....	27,975	27,521	1.6
Persons engaged in manufactures.....	1,324,175	1,060,562	24.9
Proprietors and firm members.....	27,434	28,034	-2.1
Salaried employees.....	160,489	108,050	48.5
Wage earners (average number).....	1,136,252	924,478	22.9
Primary horsepower.....	4,454,796	3,549,858	25.5
Capital.....	\$6,227,268,000	\$3,149,411,000	97.7
Services.....	1,741,508,000	672,563,000	158.9
Salaries.....	334,947,000	144,610,000	131.6
Wages.....	1,406,561,000	527,953,000	166.4
Materials.....	4,211,079,000	1,688,921,000	149.3
Value of products.....	7,316,063,000	2,832,349,000	158.3
Value added by manufacture (value of products less cost of materials).....	3,104,984,000	1,143,428,000	171.6

¹ A minus sign (—) denotes decrease.

LEGISLATION. The feature of the 1921 session of the legislature was the fight against the legislative programme advanced by Governor William C. Sproul, which reached its climax on April 25 when the administration forces held a "rump" session, ousted Speaker Robert S. Spangler and put Samuel W. Whitaker in his place, and passed the measures which had been held up by the contest. These included a bill creating a Welfare Department to take over the duties of the old board of public charities, the lunacy committee, the prison labor board, and related activities, and two measures repealing the only non-partisan election laws in the State, those dealing with

the election of judges and of officials of cities of the second class. Other acts of the legislature were the repeal of the full-crew law and the passage of a bill generally increasing teachers' salaries. While efforts to repeal the Brooks high license law for saloons and to secure a rigid State enforcement bill failed, a compromise prohibition enforcement measure was passed. The legislature approved a proposed constitutional amendment providing a \$35,000,000 bond issue for the purpose of providing veterans of the World War with a bonus of \$10 for each month of service, the limit in each case being \$200. To become part of the constitution this measure must be approved by the 1923 legislature and by the voters of the State at the November election of that year.

ELECTIONS. A special election for the place of Congressman-at-large, made vacant by the death of Congressman M. M. Garland, held on September 20, resulted as follows: Thomas S. Crago (Republican), 705,876; John P. Bracken (Democrat), 221,288; Cora M. Bixler (Socialist), 29,781; B. E. P. Prugh (Prohibition), 74,837; Crago having a majority of 279,919 over all others, and 484,588 over Bracken. In the fall election William I. Schaffer was reelected Justice of the Supreme Court, the vote being: Schaffer (Republican), 991,389; Eugene C. Bonniwell (Democrat), 500,758; A. B. Lewis (Socialist), 50,674; Charles Palmer (Prohibition), 87,862. The proposal to hold a constitutional convention for the purpose of making a new State constitution, approved by the legislature, was rejected by the voters, the result being: Yes, 419,191; No, 518,889. The same proposition voted on in 1891 resulted: In favor, 173,813; against 420,598. The present constitution was framed in 1873.

OFFICERS. Governor, William C. Sproul; Lieutenant-Governor, Edward E. Beidleman; Secretary of the Commonwealth, Bernard J.

Myers; Attorney-General, George E. Alter; Auditor-General, Samuel S. Lewis; Treasurer, Charles A. Snyder; Secretary of Internal Affairs, James F. Woodward; Superintendent of Public Instruction, Thomas E. Finegan; Adjutant-General, Frank D. Beary; Commissioner of Banking, John S. Fisher; Secretary of Agriculture, Frederik Rasmussen; Commissioner of Forestry, Gifford Pinchot; Commissioner of Labor and Industry, Clifford B. Connelley; Commissioner of Welfare, J. M. Baldy; Highway Commissioner, Lewis S. Sadler.

JUDICIARY. Supreme Court: Chief Justice, Robert von Moschizsker; Justices, Robert S.

Fraser, Emory A. Walling, Alexander Simpson, Jr., John W. Kephart, Sylvester B. Sadler, William I. Schaffer.

PENNSYLVANIA, UNIVERSITY OF. A co-educational, non-sectarian institution of the higher learning at Philadelphia, Pa.; founded in 1740. The enrollment for the fall of 1921 was 14,199; for the summer school 1768. The faculty numbered 1006. The library contained 500,000 volumes. The productive funds amounted to \$11,526,762 and the income from the invested funds to \$603,858. Acting Provost, Josiah H. Pennyman, Ph.D., LL.D.

PENNSYLVANIA STATE COLLEGE. A non-sectarian co-educational institution at State College, Pa.; founded in 1859. The enrollment for the fall of 1921 was 3129 of whom 1107 were in the School of Engineering; for the summer session, 1905. The university includes besides the engineering school, schools of liberal arts, agriculture, mining, natural science, and home economics. The College of Liberal Arts had an enrollment of 579. The faculty numbered 301. The library contained 77,500 volumes. The funds available for the expenses of the year amounted to \$2,000,000. President, John Martin Thomas, D.D., Ph.D., former president of the Middlebury College, Vermont.

PENOLOGY. In all progressive modern systems attention is concentrated on the reformation of the prisoners, and in the United States the two chief features introduced for this purpose have been the indeterminate sentences and the parole. The former was first practically applied in this country in Michigan at the suggestion of the late Zebulon R. Brockway in 1867, when a law was passed authorizing the release of a prostitute at an earlier date than the expiration of the three-year sentence on assurance of her fitness and intention to lead a better life. This was followed in New York State by the legislation creating the Elmira system which was inspired by the success of English and Irish experiments. There is a wide divergence in the manner of applying the principles of indeterminate sentences, not only from State to State, but even in the same State, where one system may be applicable to the State prison, another to the State reformatory, etc. There have been no complete indeterminate sentences either in the State or under the Federal government applicable to responsible persons convicted of crime; and all indeterminate sentences are sentences which are indeterminate within minimum or maximum limits, the sentences having a definite limitation as to the longest period for which a convicted person may be imprisoned. Parole is the term applied to the period of supervision exercised by the authorities over a prisoner after he has left confinement in accordance with the varying requirements of the law or administration. Parole becomes operative at different periods of a sentence, and there is great variety in the practice of the different States. In some States conditional release may follow the expiration of the minimum sentence; in others, the expiration of one-third or one-half of a sentence; in a few immediately upon entrance into the institution; and in still others, may be granted by the governor. The term of parole varies from six months to one year, but in some States may last until the expiration of the maximum sentence. In view of the confusion resulting from the fact

that each State has had its own methods in respect to minimum sentences and for parole, a useful piece of work was done in 1921 by Mr. E. R. Cass, Secretary of the Prison Association of New York, who studied the methods of each State and summarized present practices. The difficulty of judging the after-careers of prisoners is obvious, and the reports as to the percentage of criminals who have undergone reformation are not based on any uniform and definite criterion, hence, it is impossible to secure exact information in respect to the effect of the American features of the indeterminate sentence and parole on the after-life of prisoners. After an investigation of this subject Mr. Cass made the following recommendation: "To trace the after-careers of prisoners, two methods are suggested: The first is that an intensive study be made in such States as California, New York, New Jersey, Massachusetts, Illinois, and Indiana, of the conduct of former inmates who have been released, from parole custody, for a period of five or ten years. The American Institute of Criminal Law and Criminology has long urged that such a study be made, and, at the time of this writing, has hopes that, through a financial pledge from the Carnegie Corporation, it will soon be in a position to undertake the same. In 1912, the New York Prison Association, with the financial aid of the Russell Sage Foundation, expended thousands of dollars in making a study of former Elmira inmates. This study was seriously handicapped by the inability of the investigators to locate many of the released prisoners. Likewise, any similar study will meet with the same difficulties. Therefore, it is my firm belief that we shall never be able to determine, with any reasonable accuracy, the results of the indeterminate sentence and parole until there is established a system whereby every penal institution in this country will be required to file with a central Federal bureau, duplicate copies of the records of its inmates." A summary of pardon, indeterminate sentence, and parole laws in use in the several States of United States in the year 1921 will be found in the pamphlet by Mr. E. R. Cass above mentioned, entitled, "A Study of Parole Laws and Methods in the United States" which was read at the annual congress of the American Prison Association in Jacksonville, Fla., November 1. His summaries for Federal institutions and those of New York State were as follows:

Federal. Any prisoner confined for a term over one year may be paroled after serving one-third of the term or terms for which he was sentenced. Board of Parole consists of Superintendent of Prisons of Department of Justice, warden of each United States penitentiary and its physician. It establishes rules for procedure, subject to Attorney-General's approval, prisoner may make application for parole. He is under control of the warden of the prison from which paroled until expiration of term minus good time allowance. Is given a limit of residence. United States Attorney-General must approve action of Board before release. Warden may have prisoner rearrested. Then he appears before Board of Parole and decides action. If reimprisoned then time of parole does not count in sentence. Paroled prisoners must be supplied with clothing, transportation, and \$5. A United States prisoner confined in any State reformatory is subject to parole laws of that

State. United States Attorney-General must approve order for parole, however, and prisoner when on parole may return to State he lives in under supervision of marshal of his district. Above all laws is the power of the President to grant pardon or commutation in any case and good time allowance.

New York. Three different types of indeterminate sentence laws are in vogue. Elmira Reformatory receives male offenders between 16 and 30 years of age, convicted for the first time of a felony and for the second time of a misdemeanor. Felons may be detained for the maximum period laid down in the Penal Code for the specific offense, but no minimum is prescribed, and the Board of Managers has full power to release a prisoner at any time it sees fit. The maximum in the case of misdemeanants is three years. As a matter of practice, the Board has established a system of marking which is the principal factor in deciding when a prisoner is eligible for parole. The minimum period qualifying for release is a little over 12 months. The average time at which prisoners are actually paroled is about 14 months. In some instances prisoners are held longer.

The indeterminate sentence, as it applies to those committed to a State prison, is as follows: "A person never before convicted of a crime punishable by imprisonment in a state prison, who is convicted in any court in this state of a felony other than murder first or second degree, and sentenced to a state prison, shall be sentenced thereto under an indeterminate sentence, the minimum of which shall not be less than one year, or in case a minimum is fixed by law, not less than such minimum; otherwise, the minimum of such sentence shall not be more than one-half the longest period and the maximum shall not be more than the longest period fixed by law for which the crime is punishable of which the offender is convicted."

At the expiration of the minimum period, less time allowance for good conduct, a prisoner serving an indeterminate sentence may be paroled. The usual practice is to parole prisoners at the expiration of the minimum period. Paroles are decided by the Board of Parole, which consists of two salaried members and the Superintendent of Prisons, ex-officio. There are three parole officers, but the actual supervision of those on parole is conducted by organizations coöperating with the Board of Parole. The parole period is usually one year, except for those whose sentence was commuted, or who were committed for murder, second degree, for which cases the parole period is usually two years. The Parole Board, of course, can keep a prisoner on parole until the expiration of his maximum sentence.

A recent amendment to the law provides that prisoners released after serving a definite sentence, shall be placed in the custody of the Parole Board for the period of time which was deducted from their sentence for good behavior.

The third kind of indeterminate sentence law operating in the State is based upon the law of 1915, which is applicable to all cities of the first class in the State, but has so far only been actually applied to New York City. This relates to persons sentenced to imprisonment in any penitentiary, workhouse, or reformatory in a city of the first class. In the case of the reformatory and penitentiary, every sentence is for an indefinite term,

subject to a maximum of three years, while in the case of the workhouse the sentence may be indeterminate, and, if so, is subject to a maximum of two years. The Parole Commission has absolute discretion to release a prisoner from a reformatory or workhouse at any time after the commencement of the sentence, but it is required to first send to the committing judge notice of the time and place of the meeting at which the case will be disposed of, so as to give him an opportunity to express an opinion or make a suggestion regarding its disposal. In the case of prisoners committed to a penitentiary, the Parole Commission may similarly, at any time, make a recommendation in favor of parole to the committing judge, but his approval in writing is necessary before such recommendation becomes effective. This law, it will be noticed, in some ways more closely approaches a true indeterminate sentence than that in force in most parts of the country. There is no special maximum fixed by the statute or by the court for each offense, but merely the general maximum of two years for all offenses in the case of an inmate of a workhouse, and of three years in the case of an inmate of a reformatory or penitentiary; nor is there any minimum. The Parole Commission can release a prisoner on the day after the sentence is passed, provided that in the case of an inmate of a penitentiary the sanction of the committing judge is obtained. The Parole Committee consists of three salaried members and two ex-officio members, namely, the Commissioner of the Department of Correction and the Commissioner of the Police Department; there is also a paid secretary and a large staff of parole officers. The three paid commissioners are appointed by the mayor of the city and are required by law to give full time service. The parole officers are appointed from a civil service list by the commissioners.

GREAT BRITAIN. According to the report of the Commissioner of Prisons for the year ending March 31, the number of prisoners had increased by 10,000 over the preceding year; sentences to imprisonment had risen from 34,000 to 42,000; persons imprisoned as debtors or on civil processes, from 2800 to 5200; and male prisoners increased by eight per cent while female prisoners decreased by twenty-two per cent. The results were considered extremely satisfactory in view of the unemployment and industrial unrest. The decrease since the period before the war was remarkable as shown in the following table:

<i>Offenses</i>	<i>1913-14</i>	<i>1920-21</i>
Indictable—		
Murder, manslaughter, wounding, &c.	474	389
Burglary, housebreaking, &c.	1,960	1,548
Larceny, embezzlement, receiving, and false pretences.	19,126	12,995
Non-indictable—		
Assaults.	8,666	3,312
Drunkenness, &c.	51,851	8,752
Police regulations, offenses against.	8,661	1,948
Poor law, offenses against.	4,275	1,122
Prostitution.	7,952	2,958
Begging and sleeping out.	15,019	2,539

In certain parts of the country a marked change in the character of offenses was noted. For example, the governor of Durham prison, contrasting the number of first offenders in 1921, 18,000, with those in 1913-14, 45,000, pointed out the fact that a new stamp of offenders had

sprung into existence and that men and women of respectable antecedents and in regular employment were taking to serious crimes, especially, fraud, embezzlement, housebreaking, etc. Owing to the large proportion of women among these offenders it was not believed that the war was responsible for the increased lawlessness of this class. The men offenders were reported as being usually intelligent and of a fair education.

PENROSE, BOIES. United States Senator and party leader, died at Washington, D. C., December 31. Down almost to the day of his death he was busy with public affairs, being Chairman of the Finance Committee and having to deal in that capacity with pressing matters of tax and tariff legislation. He was born at Philadelphia, Pa., Nov. 1, 1860, the son of a well-known Philadelphia physician and university professor, and was educated at Harvard, where he graduated in 1881 with the second highest honors of his class, the first place being held by his brother. He was admitted to the bar in 1883 and practiced at Philadelphia but from the first devoted himself to politics and continued his political activity throughout his life. He was a member of the Pennsylvania State house of representatives 1884-86, and of the State senate 1887-97. From that time on he served continuously in the United States Senate. He was Chairman of the Republican State committee 1903-05 and a member of the Republican National Committee after 1904, except for the interval 1912-16, and he was a delegate to the Republican National Conventions of 1900, 1904, 1908, and 1916. His skill as a politician was remarkable and for many years he dominated the politics of his State and exercised a powerful influence in the Republican party as a whole. He was regarded as the representative of the old party machine and successor to the great political bosses, such as Platt, Quay, and Hanna. In Pennsylvania he had been preceded by Cameron and Quay, but it was generally held that his ability as a leader was superior to theirs. He was admired as a party manager or condemned as a political boss according to the prepossessions of the writer and his name became almost synonymous with the sort of control over political affairs which Roosevelt and the more progressive members of both parties as well as liberal sentiment generally had condemned. By Roosevelt the corrupt control of politics was termed, for example, "Penrosism." In spite of the attacks upon him as a boss he was not personally involved in any of the political scandals of the organization in which he took part during the last fifteen years of his life. The main features of his political career were his long fight against Theodore Roosevelt and his contest with the faction of the Republican party in Philadelphia headed by the Vare brothers. In the Senate he advocated United States intervention in Mexico as early as 1913. He opposed the Treaty of Peace when it was submitted and he condemned the cession of Shantung to Japan as a violation of every principle of the League of Nations. His chief interest was in revenue legislation and his rare speeches in the Senate were generally on matters pertaining to it. He opposed Prohibition and fought against the Federal amendment. In the Senate he was a member of the four important committees: Finance; Banking and Currency; Immigration; and Naval Affairs. Mr. Penrose was among the

most widely read and scholarly men of the Senate. In regard to his private life little was known for he avoided publicity in that respect wherever possible. His death left no single man with the capacity and the following that marked him as successor and it was believed that the power formerly wielded by him would be divided among several. The chairmanship of the Finance Committee passed for the first time in forty years to a representative of a western State. He was the author of a *History of the City Government of Philadelphia*.

PENSIONS. See OLD AGE PENSIONS, and UNITED STATES.

PERAK. The most northerly of the Federated Malay States (q. v.).

PERIN, GEORGE LANDOR. Clergyman, died at Brookline, Mass., December 22. He was the first missionary of the Universalist Church in Japan. He was born in Jasper County, Iowa, July 31, 1854, and ordained to the Universalist ministry in 1878. He was a Universalist missionary in Japan from 1890 to 1894. Except for the interval of these four years he held a pastorate in Boston from 1883 to 1910. In 1901 he founded a home for working girls and students. He wrote *The Sunny Side of Life* (1901).

PERKINS, EDMUND TAYLOR. Civil engineer, died at Chicago, May 21. He was known as a reclamation expert. He was born at Scottsville, Va., Sept. 8, 1864; graduated in the regular college course and in civil engineering at Union College, New York, in 1885 and was topographer on the United States Geological Survey, 1885-1902, after which he was engineer in the United States Reclamation Service till 1910. He was president of the Edmund T. Perkins Engineering Company at Chicago after Nov. 1, 1910. He contributed to the magazines on various engineering and reclamation topics.

PERRIER, EDMOND. French zoölogist, died in Paris in August. He was former Director of the Museum of Natural History. He was born near Corrèze, May 1, 1844, and studied at the Polytechnic, and Superior Normal schools, graduating from the latter in 1866 in mathematical and physical sciences. In 1868 he entered the staff of the museum of natural history and in 1876 he became professor and administrator of the museum. He was a member of the commission engaged in deep-sea explorations in the Mediterranean and the Atlantic, 1881-83, and from his experiences he derived much material for his scientific papers. He was an ardent follower of Lamarck and Geoffroy Saint-Hilaire and one of his first works dealt with the subject of zoölogical philosophy before Darwin. He was elected to the Academy of Sciences in 1892 and an associate of the Academy of Medicine in 1898. His work at the museum of natural history was twofold, in the first place, consisting of researches in pure science and studies in which the Lamarck theory was sustained; in the second devoted to the development and improvement of the botanical garden and to the securing of the necessary buildings for the valuable collections of the museum. As museum administrator he established relations with the governments of the French colonies and set on foot a number of important expeditions for the study of fauna and flora. Under him naturalists explored many parts of the world and brought back rich collections for the botanical

gardens. He was an ardent defender of the practical application of natural history to industry and did much to contribute the development of the fisheries. He founded one of the first laboratories of marine biology, at Tahiti. Certain changes in the nomenclature of morphology were suggested by him. In 1913 he became President of the Academy of Sciences. Among his writings may be mentioned the following: *Les colonies animales et la formation des organismes* (1881; 2nd ed., 1898); *Les principaux types des êtres vivants*, etc. (1882); *La philosophie zoologique avant Darwin* (1884); *Éléments de zoologie* (1886; 8th ed., 1899); *Traité de zoologie* (1892-1903); *La vie des animaux illustrée* (1903-06); *La femme dans la nature et l'évolution du sexe féminin* (1908).

PERSIA. A monarchy of Asia between 25° and 40° N. latitude and 44° and 60° 30' E. longitude, and reaching from the Gulf of Oman to the Caspian sea. Capital, Teheran.

AREA AND POPULATION. Area variously estimated at from 628,000 square miles to 635,135 square miles; population, from 8,000,000 to 16,000,000. A large portion of the area is absolute desert and at a high altitude, in which regions the average density of the population is reckoned at not more than 15 to the square mile. The only navigable river is the Karun. In the north and west there are extensive forests, but the central and eastern part is occupied by a salt desert. About 3,000,000 of the inhabitants are nomads, including about 720,000 Turks; 675,000 Kurds and Leks; 260,000 Arabs; 234,000 Lurs; 20,700 Baluchis and Gypsies. The European residents have been placed at about 1200. Chief cities: Teheran, 220,000 to 350,000; Tabriz, 200,000; Meshed and Kermanshah, 70,000 to 80,000 each; Ispahan, 80,000. All the above figures for population are mere estimates. The Persians belong to the Shiite sect of Mohammedans. The schools have been estimated at only 180 in number with about 10,000 pupils, but there are many colleges, supported by public funds.

PRODUCTION. The chief agricultural products are: Wheat, barley, rice, gums, fruits, drugs, wool, cotton, silk, and opium. There has latterly been an increase in the production of opium and tragacanth. Wool of especially fine quality is raised at Khorassan. Persian silks and Persian carpets are celebrated all over the world, the carpets are all made by hand, and the centres of the industry are at Tabriz, Kerman, Sultanabad, and Hamadan. There are rich but undeveloped mineral resources, including: Lead, iron, copper, coal, salt, manganese, marble, borax, mercury, nickel, cobalt, petroleum, and turquoises. No later figures for production were available than those given in the preceding YEAR BOOK.

COMMERCE. The chief products for export and import are shown in the following table from the *Statesman's Year Book* of 1921 in thousands of krans in the years 1917-18 and 1918-19, inclusive (a kran equals about nine cents):

Imports	1917-18	1918-19
	1000 krans	1000 krans
Cottons.....	130,542	154,763
Sugar.....	101,055	125,563
Tea.....	13,508	53,567
Gold and silver bars.....	8,508	2,900
Gold and silver coin.....	15,294	3,140
Petroleum.....	16,041	7,596
Yarn.....	12,876	5,218

Imports	1917-18	1918-19
	1000 krans	1000 krans
Flour.....	4,561	3,117
Woolens.....	4,411	3,287
Indigo and kermes.....	6,112	4,779
Haberdashery.....	5,351	2,819
Rice.....	19,045	14,142
Spices.....	3,471	7,873
Wool.....	3,071	914
Animals.....	6,514	7,015
Silk goods.....	2,067	2,155
Tin, zinc, and lead.....	869	1,732
Tobacco.....	404	858
Copper and nickel.....	.....	.....
Iron and steel.....	5,584	3,310
Iron and steel manufactured.....	17,814	15,292
Timber.....	3,954	1,829

Exports	1917-18	1918-19
	1000 krans	1000 krans
Fruits.....	48,112	21,793
Carpets.....	7,130	4,807
Cotton.....	24,060	3,719
Fish.....	3,445	2,746
Rice.....	19,699	650
Gold and silver coins.....	7,482	1,397
Gums.....	5,058	2,598
Opium.....	44,783	28,595
Wool.....	8,098	1,091
Cocoons.....	265	411
Skins.....	8,270	1,640
Animals.....	29,098	12,174
Silk stuff.....	987	1,874
Cottons.....	2,956	11,567
Hides.....	3,238	356
Silk.....	.....	.....
Wheat and barley.....	.....	1,863
Pearls, etc.....	.....	.....
Drugs.....	1,597	1,273
Timber.....	577	437
Tobacco.....	2,031	1,874
Petroleum.....	107,178	155,424

The distribution by countries in 1918-19 is shown in the following table from the *Statesman's Year Book* of 1921:

From or to	Imports 1918-19	Exports 1918-19
	£	£
Afghanistan.....	270,300	47,050
Germany.....	1,080	.....
Austria.....	1,950	.....
Belgium.....	9,472	.....
China.....	145,702	7,107
Egypt.....	677,110	2,045,605
United States.....	4,024	85,265
British Empire.....	13,692,180	4,177,029
France and Colonies.....	19,574	2,741
Italy.....	13,941	.....
Netherlands and Colonies.....	324,530	.....
Russia.....	1,192,410	1,890,455
Switzerland.....	11,430	.....
Turkey.....	368,051	1,333,014
Muscat.....	2,780	4,333
Oman.....	178,280	151,536
Japan.....	67,834	7,539

Great Britain's share of the total trade for the year ending March 20, 1919, was about 70 per cent.

COMMUNICATIONS. The total length of the railways at the beginning of 1921 was placed at about 150 miles. Since 1903 the highways have been greatly extended and improved. The principal routes are by way of Trebizond, Resht, and Meshed to Russia; Khorassan and Seistan to India; Kermanshah to Bagdad; Bushire to Ispahan and Teheran; and Bender Abbas to the interior.

DEFENSE. By the Anglo-Persian agreement of August 9, 1919, there was to be a uniform military force under the command of British officers. Meanwhile a Cossack brigade had been formed by Russia under an agreement with the Persian

government in 1912. The Cossack division in 1919 consisted of 7856 Persian troops, 202 Persian officers, and 56 Russian officers. The cost of maintaining this division was borne chiefly by Great Britain, the balance of about one-third being paid by Persia. The Russian officers were dismissed in October, 1920, and British officers were substituted. There were also at the end of 1920 two brigades of South Persian rifles, consisting of 5400 Persian troops with 306 British officers and 190 Persian officers. In April, 1920, the Anglo-Persian military commission recommended the placing of the South Persian rifles and the Cossack division directly under the command of the Persian government, and that the military forces, including existing formations, should be maintained at the strength of 43,000. This arrangement was not ratified by the Persian government. The British and Indian troops in northwest Persia in January, 1921, numbered about 70,000. They were withdrawn at the close of the year. See below under *History*.

GOVERNMENT. The attempt to transform Persia from an absolute monarchy to a constitutional state in 1906 led to many disturbances, and the parliament or Mejliss constituted at that time practically ceased to exist as a legislative or administrative body after November, 1915. The reigning Shah in 1921 was the Sultan Ahmed, born, Jan. 20, 1898, and crowned, July 21, 1914, but the government has been under the control of the cabinet. An agreement was made by the British and Persian governments, August 9, 1919, providing for a British adviser in Persian administration; British financial assistance in administrative reforms; and a joint British and Persian military commission for the establishment of a military defense force (see *YEAR BOOK* of 1919), but this agreement did not go into force and was rejected by the Persian prime minister, Feb. 27, 1921. The ministry as constituted March 1, 1921, was as follows: Prime Minister and Minister of the Interior, Seyed Ziaed-Din; Foreign Affairs, Modirel-Molk; War, Reza Khan; Education, Nayerol-Molk; Finance, Mirza Eissa Khan; Justice, Mansuree-Sultaneh; Posts and Telegraphs, Mochir-Moazam; Public Health and Charity, Moadebod-Dowleh; Public Works, Movaghared-Dowleh.

HISTORY

CABINET CRISES. The Sipahdar ministry was overthrown by military forces under General Reza Khan, February 20, the movement having started, according to the reports, at the British headquarters at Kasvin. The new ministry under Seyed Zia-ed-Din, issued its programme (March 11), which among other things undertook to annul the last Anglo-Persian agreement and to rid Persia of foreign troops. This cabinet was in turn overthrown at the beginning of June, and a new ministry was established, June 4, under Ghevam-es-Saltaneh as prime minister and minister of home affairs, which on June 11 issued a statement to the foreign offices of other Powers to the effect that Persia would be entirely independent, henceforth, while it desired at the same time to maintain the most friendly relations with all nations.

WITHDRAWAL OF THE BRITISH. The withdrawal of the British troops from the former

Russian sphere of interest in northern Persia began January 18. The British forces left the capital, May 16. The address of Lord Curzon, British Foreign Minister, in the House of Lords, July 26, gave great offense in Persia, especially its implication that Great Britain would cease to interest herself in Persia now that the Persian government had denounced the Anglo-Persian treaty and had allied itself with Moscow. The Persian press also attacked the British financial administration, complaining of the policy of the British financial adviser, Mr. Armitage-Smith. It denied that Great Britain had saved Persia in the war. As to the invasion of Persia by the Bolsheviks, that would not have happened if British troops had not been occupying the country. A contrast between the British financial policy and that of the American adviser, Mr. Morgan Shuster, was pointed out to the great disadvantage of the former. The last remnants of British participation in the internal affairs of Persia disappeared with the departure from the capital of the British controller of Persian finances, Mr. Armitage-Smith, September 20, and the disbanding of the South Persian Rifles, September 23. The offer of the Persian government to take over this military corps was rejected by the British foreign minister who decided that no arms or munitions should be turned over by the British government either to Persian officials or Persian individuals.

RELATIONS WITH RUSSIA. In January there were reports of negotiations between the government and Moscow agents. On February 26 the Persian government signed a treaty with the Soviet government according diplomatic rights to the latter. Envoys from the Soviet government arrived at the capital, May 1.

OTHER EVENTS. In November President Harding received the credentials of the new Persian Minister, Mirza Hussein, and at the close of the year Rabbi Joseph Saul Kornfeld became United States minister to Persia. In December negotiations were going on between British and American interests in the oil fields, but it was a question whether the situation would not have to be settled by diplomatic action.

PERU. A South American republic. Capital, Lima.

AREA AND POPULATION. Area, estimated at from 679,600 to 723,461 square miles, the latter including the department of Tacna, in dispute with Chile (q. v.); population, estimated at from 4,500,000 to 4,620,201. Lima had a population, estimated in 1919 at 175,000. Other important cities with estimates of population are: Callao, 34,346; and Arequipa, 35,000 to 40,000. The above estimates do not include uncivilized Indians whose numbers are unknown. No later figures for education were available than those given in the preceding *YEAR BOOK*.

PRODUCTION. The chief agricultural products are: Sugar, coffee, and cotton. The sugar industry is the most important and is carried on chiefly in the coast region. In 1918 it employed about 23,456 laborers in the cultivation of the cane which covered an area of 124,510 acres, with an output of 238,190 tons. Cotton production in 1918 amounted to 24,603 tons. Other products are: Rice, cocoa, wheat, tobacco, wines, and spirits, olives, ramie, and corn. The development of rice cultivation has been an important feature

of the last ten years, and rice has become one of the chief crops of the northern part of the country, where about 90 per cent of the total crop is grown. The production rose from 33,000 metric tons in 1915 to 42,040 metric tons in 1918, and 42,650 in 1919. The crop of the last-named year had an acreage of 72,552. There is a considerable production of cocaine in Lima and several other towns. The important cocoa-growing district is in the department of La Libertad. Various medicinal plants, including cinchona, are produced; and there are large shipments of rubber on the Amazon from Iquitos. Alpaca, sheep, and llama wool is exported in large quantities. The quantity and value of mineral production for 1919, according to a British authority, is as follows:

	Quantity	1919 Value £
Copper.....	Metric tons.. 39,230	2,879,983
Petroleum.....	" 348,649	2,363,544
Silver.....	Kilos. 305,497	2,071,257
Gold.....	" 2,029	267,303
Coal.....	Metric tons. 344,260	263,368
Vanadium ore (45 per cent).....	" 2,947	388,470
Tungsten ore (65 per cent).....	" 129	14,120
Lead.....	" 1,066	16,227
Salt.....	" 27,724	24,843
Borates.....	" 519	7,785
Antimony ore.....	" 60	272
Molybdenum ore (82 per cent).....	" 4,740	1,194
Quicksilver.....	Kilos.....	.....
Total (including all others).....	.....	8,306,776

¹ The value after the petroleum has been refined.

FINANCE. In the autumn a measure was before congress for the creation of a national bank, of which the capital was to be £10,000,000 subscribed half by the government and half by private capital. The issue of banknotes was authorised, half of it to be secured by gold and government banknote deposits, and half by commercial paper.

COMMUNICATIONS. The ships, entered, at Callao in 1919 in the foreign trade numbered 586 steamships of 1,004,862 tons; cleared, 576 of 991,158 tons. Of the steamships entered: 147 were British; 143, Chilean; 128, Peruvian; 111, United States; 12, Japanese. In 1918 the railways open for traffic had a mileage of 1889, of which 1358 miles were state lines under the control of the Peruvian corporation. By executive decree of August 31 the Peruvian Government was to secure the control and administration of the Northwestern Railway of Peru from the British company owning the line for a sum of some \$3,500,000. This railway connected the towns of Ancon and Huacho—a distance apart of about 90 miles, but two other short branches of the road ran from Huacho to Sayan and from Hualar to Chancay—distances of 34 and 8 miles, respectively. There was also activity manifested towards new construction, and late in the year it was reported that British-Canadian interests and the Peruvian government were nearing an understanding whereby the former were to construct some 1500 miles of railway in various parts of Peru and receive in return large grants of agricultural and mineral lands. Negotiations were reported to have advanced sufficiently for the government to be ready to send the contracts to congress for ratification as soon as assurance was forthcoming on the part of the promoters of their financial ability to carry through the undertaking.

Y-B-21—18

GOVERNMENT. Executive power is in a president elected for five years and legislative power in a senate of 57 members and a house of representatives of 128 members. President in 1921, Augusto B. Leguia. See NAVAL PROGRESS and EXPLORATIONS.

HISTORY. The government announced, on December 14, that the rebel forces had been repulsed in three encounters and denied the report of any government defeat. A presidential decree at the close of the year, forbade any foreign aviator to cross the boundaries at an altitude of less than 3000 metres, and fixed a protective zone, beyond which any aviator found trespassing would be suspected of espionage, but foreign aircraft were to be permitted to cross Peruvian territory if previously authorized by Peruvian officials. The government, on December 25, notified Bolivia of its readiness to coöperate in bringing about arbitration between Bolivia and Chile, if the controversy between the latter and Peru were settled by arbitration. This was in reply to a note from Bolivia, that in the event of continued dispute over Tacna and Arica, there should be an international conference of disinterested nations to settle the conflicting claims.

PETER I (PETER KARAGEORGEVITCH), king of Serbia, died at Belgrade, August 16. For many years of his life he had been a wanderer and did not reach the throne until he was middle-aged. He was born at Belgrade in 1846, grandson of "Black" George and son of Prince Alexander of Serbia who was deposed in 1858. While still only a second-lieutenant just out of the French military school of Saint-Cyr, he fought with a thousand comrades maintained at his own expense in an endeavor to regain the throne. Through the intervention of the Great Powers his exile was ordered. During the war of 1870 he offered his sword to France and was given a commission. He won the rank of captain at Villersexel where he was wounded; and received also the star of the Legion of Honor in recognition of his bravery. He returned to his own country at the time of the Russo-Turkish war in which he fought on the side of the Russians. After 1890 he took up his residence at Geneva and devoted himself to study and to the education of his sons. After the murder of Alexander I and Draga in 1903 he regained the throne of his ancestors. It was a position of great danger and difficulty and brought with it little honor. Although all the people had hailed him as a liberator and although they held him guiltless of any complicity in the murder, the courts and chancelleries of Europe looked at him askance. Austria realized that he would not be a mere figurehead like Milan or Alexander. England professed to be shocked that he should owe his crown to a double murder. Russia feared that such an example be copied in her own dominions. France remained indifferent to the affairs of the Balkans at that time and followed the lead of Russia. Germany continued to plan her aggressive policy in the Near East and Italy was even then coveting the Dalmatian coast. Several times attempts were made to assassinate him. The enmity of Austria robbed him of Bosnia and Herzegovina and stood in the way of the Serbian dream of a Greater Serbia. Furthermore, Austria desired Albania. Then came the Balkan Alliance which King Peter joined in the hope of breaking the hostile circle which surrounded his country.

The victory, however, left him in grave anxiety on account of the rivalry of the other members of the alliance. The dreams of peace justified his apprehensions. After the Austrian attack on Serbia he left the country, but not before he had fired some shots from the trenches along with his soldiers. His health was already broken and after the exile in Corfu, Egypt, and Tunis, he returned to Saloniki and remained during the terrible winter of 1915-16. Considering Constantine of Greece a traitor to the cause of the Allies, he refused the military honors accorded to him by the Greek king. He then went to the Serbian legation and lived there in modest quarters until the time of his death.

PETERS, JOHN PUNNETT. Archaeologist, Hebrew scholar, and clergyman, died in New York City, November 10. For many years he was well known for his archaeological work in Babylonia. He was born in New York City, Dec. 16, 1852, graduated at Yale University in 1873, and studied at the Universities of Berlin and Leipzig, 1879-83. He was the son of Rev. Dr. Thomas McClure Peters, rector of St. Michael's Episcopal Church in New York City. He was ordained priest in 1877; was a tutor at Yale 1876-79; and after 1885 was Professor of Hebrew in the University of Pennsylvania. During part of that time he also held the chair of Old Testament Languages at the Episcopal Divinity School, Philadelphia. He succeeded his father as rector of St. Michael's in New York City in 1893 maintaining that charge until 1919 after which he became Rector Emeritus and Professor of New Testament Literature and Languages in the University of the South, Sewanee, Tenn. In the meanwhile from 1888 to 1895 he was in charge of the archaeological excavations in Babylonia undertaken by the University of Pennsylvania, being the first archaeological expedition sent out by the university. Under his direction the site of ancient Nippur was discovered and the excavation of the city was begun. He took a prominent part in the civic life of New York in the interest of good government and was President of the West Side Independent Club from 1896 to 1916. He was particularly active in connection with the traction problems of the time. Shortly before his death he took a public stand in favor of the election of William T. Manning to the bishopric of New York. The list of his archaeological and philological writings is too long to be repeated here but includes treatises on Nippur and other subjects connected with the excavations, on modern Christianity, on early Hebrew life, the religion of the Hebrews, etc., and he edited or collaborated in a number of works of history, biography, literature, etc.

PETERSON, SIR WILLIAM. Principal of McGill University, Montreal, died, January 4, at Hampstead, London. He was born in Edinburgh, Scotland, in 1856 and educated at the University there and at the University of Göttingen. In the Scottish university he distinguished himself in the classics and later became a scholar at Oxford. Thence he was called as a teacher to Harrow and in 1879 returned to the University of Edinburgh where he was made assistant-professor of classics. In 1882 he became the first Principal of University College, Dundee, and was still at that institution in 1895 when he was appointed Principal of McGill University at Montreal and professor of classics. His administration was remarkable for

many new endowments and for academic progress, especially in the arts, medicine, and applied science. Although he held that the arts course was the foundation of a university education, he brought the medical department to a high level, making it rank in Canada with the Harvard and Johns Hopkins medical schools in the United States. He was a strong imperialist and an advocate of Anglo-Saxon unity.

PETROLEUM. Production of petroleum in the United States in 1921, as indicated by the quantity transported from producing properties compiled from company reports to the United States Geological Survey, amounted to 469,639,000 barrels, representing an estimated value at the wells of \$753,300,000. This was the greatest quantity ever produced in the United States in any one year and represented an increase of 26,237,000 barrels over the production of 1920 and was more than double the quantity produced in the United States in 1912. World's production figures for 1921 were not available, but preliminary estimates indicated a total not far from 750 million barrels as compared with 695 million barrels produced in 1920.

Imports of crude oil into the United States during 1921 amounted to 125,307,000 barrels as compared with 106,175,000 barrels in 1920 and with 52,822,000 barrels in 1919, these figures corresponding respectively to 27, 24, and 14 per cent of the domestic production of the past three years. Exports of crude oil during 1921 amounted to 8,940,000 barrels and during 1920 to 8,757,000 barrels.

Estimated consumption (deliveries to consumers) of domestic and imported crude oil during 1921 amounted to 525,407,000 barrels as contrasted with 530,474,000 barrels in 1920. Consumption for the year just ended therefore amounted to 55,768,000 barrels more than the country produced.

Stocks of crude oil increased 60,599,000 barrels during the year, as follows: Net pipe-line and tank-farm stocks east of California 42,142,000 barrels; gross pipe-line and tank-farm and producers' stocks in California 12,359,000 barrels, and stocks of Mexican petroleum held in the United States by importers 6,098,000 barrels. On Dec. 31, 1921, stocks of crude oil, exclusive of lease storage and of stocks at refineries, amounted to 183,890,000 barrels, equivalent to 119.3 days' supply at the current rate of consumption. On the last day of 1920 similar stocks amounted to 123,291,000 barrels, equivalent to 80 days' supply.

The year opened with record prices—\$6.10 per barrel at the wells for Pennsylvania grade and \$3.50 per barrel for Oklahoma-Kansas grade, which had held for several months in spite of rapidly increasing stocks. Shortly after the beginning of the year, however, prices began to fall, and within a few months Pennsylvania grade had declined to \$2.25 a barrel and Oklahoma-Kansas grade to \$1 a barrel. These low prices held until the rate of rapidly increasing stocks eased off somewhat in September and October, and the year closed with Pennsylvania grade at \$4 and Oklahoma-Kansas grade at \$2 a barrel. Low prices were reflected in a marked curtailment of field activity, and 15,012 producing wells are reported to have been completed during 1921 as contrasted with 24,222 in 1920. In spite of this, however, a number of important new pools were

opened up, among which were Haynesville, La., El Dorado, Ark., Burbank, Okla., and Pierce Junction and Mexia, Texas, and extensive new developments were made in the Elk Hills and at Huntington Beach, Calif. The strike in the oil fields of California naturally cut down the production of that State, which nevertheless produced a record output of approximately 114 million barrels. Oklahoma also established a new record,

produced more than 100 million barrels and in December, as a result of developments at Mexia, ranked first among the producing States.

PRODUCTION BY STATES. The following figures, compiled from company reports to the U. S. Geological Survey, show the quantity of petroleum transported from producing properties. Oil consumed on the leases is not included.

State	(Barrels of 48 U. S. Gallons)					
	November, 1921 ¹ Total	Daily average	December, 1921 Total	Daily average	December, 1920 Total	Daily average
Texas:						
Central & Northern.....	5,908,000	196,933	7,478,000	241,226	6,749,000	217,710
Coastal.....	2,813,000	93,767	2,635,000	85,000	2,517,000	81,193
Total Texas.....	8,721,000	290,700	10,113,000	326,226	9,266,000	298,903
California ²	8,804,000	293,467	10,092,000	325,548	10,038,000	323,806
Oklahoma:						
Osage County.....	2,122,000	70,733	2,151,000	69,387	1,547,000	49,903
Remainder of State.....	7,252,000	241,734	7,564,000	244,000	7,195,000	232,097
Total Oklahoma.....	9,374,000	312,467	9,715,000	313,387	8,742,000	282,000
Kansas.....	2,726,000	90,866	2,717,000	87,645	3,044,000	98,194
Louisiana:						
Northern.....	1,757,000	58,567	2,316,000	74,710	2,434,000	78,516
Coastal.....	115,000	3,833	120,000	3,871	164,000	5,290
Total Louisiana.....	1,872,000	62,400	2,436,000	78,581	2,598,000	83,806
Wyoming:						
Salt Creek.....	1,049,000	34,967	1,503,000	48,484	827,000	26,677
Big Muddy.....	132,000	4,400	128,000	4,129	158,000	5,097
Rock Creek.....	89,000	2,967	96,000	3,097	191,000	6,161
Grass Creek.....	94,000	3,133	95,000	3,065	124,000	4,000
Elk Basin.....	36,000	1,200	44,000	1,419	69,000	2,226
Other districts.....	104,400	3,480	70,000	2,258	55,000	1,774
Total Wyoming.....	1,504,400	50,147	1,936,000	62,452	1,424,000	45,935
Arkansas³.....	1,250,000	41,667	1,200,000	38,710	.....	.....
Illinois.....	837,000	27,900	809,000	26,096	840,000	27,097
Kentucky.....	717,800	23,926	762,400	24,594	740,000	23,871
West Virginia.....	607,000	20,233	674,000	21,742	748,000	24,129
Pennsylvania.....	594,000	19,800	590,000	19,032	624,400	20,143
Ohio:						
Central & Eastern.....	409,000	13,634	414,000	13,355	466,000	15,032
Northwestern.....	157,000	5,233	173,000	5,581	172,000	5,549
Total Ohio.....	566,000	18,867	587,000	18,936	638,000	20,581
Montana.....	143,000	4,766	149,000	4,806	86,000	2,774
Indiana:						
Southwestern.....	70,000	2,333	68,000	2,194	61,000	1,968
Northeastern.....	16,000	534	20,000	645	23,000	742
Total Indiana.....	86,000	2,867	88,000	2,839	84,000	2,710
New York.....	68,000	2,267	80,000	2,581	79,000	2,548
Colorado.....	8,600	287	8,000	268	9,000	290
Tennessee.....	1,200	40	600	19	600	19
	37,830,000	1,262,667	41,957,000	1,353,452	38,961,000	1,256,806

¹ Revised.

² Average of figures reported by Standard Oil Co. and Independent Oil Producers' Agency.

³ Estimated in part.

for almost 114 million barrels were reported as removed from producing properties. Texas also

PRODUCTION BY FIELDS. The following table shows production by fields in barrels:

Field	December, 1921 ¹		Jan.-Dec., inc., 1921 ¹		Jan.-Dec., inc., 1920	
	Total	Daily average	Total	Daily average	Total	Daily average
Appalachian.....	2,521,000	81,323	30,574,000	83,764	30,511,000	83,363
Lima-Indiana.....	193,000	6,226	2,411,000	6,606	2,410,000	6,584
Illinois & S. W. Ind.....	877,000	28,290	10,935,000	29,959	11,421,000	31,265
Mid-Continent.....	23,426,000	755,678	258,085,000	701,603	249,074,000	680,530
Gulf Coast.....	2,755,000	88,871	34,180,000	95,589	26,801,000	73,227
Rocky Mountain.....	2,093,000	67,516	20,765,000	56,890	17,517,000	47,861
California.....	10,092,000	325,548	114,709,000	314,271	105,668,000	288,710
	41,957,000	1,353,452	469,639,000	1,286,682	443,402,000	1,211,480

¹ Revised.

COMPANIES ORGANIZED. During 1921, 936 companies with aggregate indicated investment amounting to \$1,255,657,000 were formed to engage in some branch of the oil industry, as compared with 1712 concerns formed in 1920 with an aggregate indicated investment of \$2,786,814,000, the loss for 1921 being about \$1,500,000,000.

For 1921 the average monthly total put into the exploitation of the oil industry as judged by the new concerns organized stood at \$104,638,083. This compared with a monthly average of \$232,234,000 in 1920. The average per company organized in 1921 was \$1,341,500. In 1920 the company average was \$1,627,812.

The average monthly indicated investment and the average capitalization for each company formed during the periods stated are as follows:

	Monthly	Company
Five months, 1914.....	\$7,647,400	\$ 497,000
Year, 1915.....	6,711,100	410,900
Year, 1916.....	34,978,800	1,748,000
Year 1917.....	70,018,283	1,641,053
Year, 1918.....	35,873,300	524,906
Year 1919.....	315,500,500	2,324,128
Year, 1920.....	232,234,500	1,627,812
Year, 1921.....	104,638,083	1,341,500

The following table shows the record for the indicated months:

1920		
January.....	209	\$ 399,356,000
February.....	211	185,860,000
March.....	188	300,295,000
April.....	190	316,129,700
May.....	180	200,350,000
June.....	132	161,275,000
July.....	133	118,641,000
August.....	103	118,370,000
September.....	76	136,100,000
October.....	115	496,968,000
November.....	91	266,190,000
December.....	95	108,680,000
Total.....	1,712	\$2,786,814,000

1921		
January.....	110	\$ 163,480,000
February.....	64	136,935,000
March.....	94	148,850,000
April.....	110	227,470,000
May.....	102	112,925,000
June.....	65	52,620,000
July.....	69	38,772,000
August.....	72	141,544,800
September.....	66	53,862,000
October.....	55	83,450,000
November.....	71	60,129,000
December.....	58	65,615,000
Total.....	936	\$1,255,657,000

EXHAUSTION OF AMERICAN FIELDS. A study made in 1921 dealing with the producing probable and possible oil-bearing regions in the United States undertaken by a joint committee composed of members of the American Association of Petroleum Geologists and of the United States Geological Survey resulted in an inventory estimate that 9,000,000,000 barrels of oil recoverable by methods now in use remained in the ground in this country Dec. 31, 1922. In other words, the oil reserves in the United States would be exhausted within twenty years at the rate of consumption prevailing in 1921.

While the reserves of coal, iron, and copper in the United States were so large that appre-

hension of their early exhaustion was not justified, the oil reserves of the country, on the other hand, as the public had frequently been warned, seemed adequate to supply the demand for only a limited number of years. The annual production of the United States in 1921 was almost half a billion barrels, but the annual consumption, already well beyond the half billion mark, was increasing so that for some years it had been necessary to import oil, and with the growth in demand dependence on foreign oil had become steadily greater in spite of increase in American output.

The estimates for local areas, fields or districts appearing in this estimate are shown herewith consolidated by States, groups of States, or broad regions in the case of non-productive States. They are, counting millions of barrels:

New York, 100; Pennsylvania, 260; West Virginia, 200; Ohio, 190; Indiana and Michigan, 70; Illinois, 440; Kentucky, Tennessee, northern Alabama, and northeastern Mississippi, 175; Missouri, Iowa, North Dakota, Wisconsin, and Minnesota, 40; Kansas, 425; Oklahoma, 1340; northern Louisiana and Arkansas, 525; Texas, except Gulf Coast, 670; Gulf Coast, Texas, and Louisiana, 2100; Colorado, New Mexico, and Arizona, 50; Wyoming, 525; Montana, Nebraska, and South Dakota, 100; Utah, Nevada, Oregon, Washington, and Idaho, 80; California, 1850; eastern Gulf coastal plain and Atlantic Coast States, 10.

It will appear from the foregoing that the estimated reserves are enough to satisfy the requirements of the United States for only twenty years if the oil could be taken out of the ground as fast as it is wanted. Should these estimates fall even so much as 2,000,000,000 barrels short of the actual recovery that error of 22 per cent would be equivalent to but four years' supply.

PHILADELPHIA BRIDGE. See BRIDGES.

PHILADELPHIA OPERATIC SOCIETY. See MUSIC, *Community Music*.

PHILADELPHIA, PA. See GARBAGE and REFUSE DISPOSAL.

PHILADELPHIA SYMPHONY ORCHESTRA.

See MUSIC, *Orchestras, Novelties*.

PHILIPPINES. An insular possession of the United States ceded by Spain in the treaty of April 11, 1899; the largest island group of the Malay archipelago. Capital, Manila.

AREA AND POPULATION. The group contains 7000 islands of which the most important with their respective areas are as follows: Luzon, 40,804 square miles; Mindanao, 36,906; Samar, 5124; Negros, 4903; Palawan, 4500; Panay, 4448; Mindoro, 3794; Leyte, 2799. Total area, 114,420 square miles; population at the end of 1918, 10,350,640, distributed among different nationalities as follows: Filipinos, 9,429,857; Chinese, 45,156; Japanese, 6684; Americans, 6405; Spaniards, 4015; English, 1063; Swiss, 451; Germans, 312; French, 218; other nationalities, 1111. Population of Manila, the capital and chief industrial centre, was 283,613. Other large towns with their populations: Iloilo on the island of Panay, 48,000; Cebu on the island of Cebu, 46,000; Laoag, 46,000, and Albay, 43,000, both on Luzon; Zamboango on Mindanao, 30,000. Arrivals in the year 1920 numbered 27,735 and departures, 24,713. Of the arrivals 4421 were citizens of the United States and 5319, citizens returning from abroad. Of the alien arrivals the Chinese were

the most numerous being 14,875, of whom 9461 were immigrants; the Japanese numbered 952, of whom 490 were immigrants. The total number of Japanese arrivals showed a decrease of 42 per cent from the preceding year. Of the total arrivals 22,162 were males and 5573 were females. Of the departures 4372 were citizens of the United States and 6523 citizens of the Philippines, going to the United States or to foreign countries. Of the aliens departing 10,536 were Chinese, of whom 89 were emigrants. The number of Japanese departing was 11,222, of whom 598 were emigrants. Of those who left the island during the year, 20,642 were males and 4071 females.

EDUCATION. English was at first used as the language of the schools as it was the only language in which American teachers could give instruction. It had been found that not more than one-tenth of the Filipinos knew Spanish and that of the native dialects there was not one that was used by more than 20 per cent of the population. Moreover, English was the prevailing commercial language of the Far East. At the present time English is the only language spoken in the primary and intermediate grades everywhere in the islands. The chief aim of the school system was to provide a minimum common-school education for every child, and a three-year course was finally decided upon as the minimum. The school attendance had increased by 1908 to such an extent that the three-year primary course was crowded and the common-school course was accordingly increased to four years. By September, 1919, the pupils in the first four grades totaled 612,503, of which nearly half, that is 300,277 were enrolled in the first grade. During the school year 1920-21, the pupils increased to about 800,000, the total school population in the islands being placed at not more than 1,300,000. While the curriculum of the primary department corresponds in general to that in the United States there is more attention given to concrete subjects, as, for example, plant life and gardening. There is a system of school gardening in operation and in the school year 1918-19 there were 3485 school gardens as well as many home gardens cultivated under school supervision. Manual training is another feature of these schools, including the weaving of baskets, mats, and hats, lace-making, embroidery, and carpentry. The system contains other agricultural and industrial features. The required studies of the four-year primary course are oral and written English, arithmetic, geography, and physical training, and there is also instruction in morals and right conduct. There is a difference in the classes of industrial work as between the two schools. In the intermediate grades vocational training is offered and the student may elect certain groups of subjects, as for example, a farm course, housekeeping and household arts course, a trade course, a general course, etc. It was reported in 1920 that the effect of this vocational training could be seen everywhere throughout the islands in the fact that Filipino craftsmen were rapidly doing the work which formerly had been done by imported Chinese artisans. In the intermediate grades in 1919 the pupils numbered 57,392. As to secondary and university education it was based on the same general principals as in the United States. In all the provincial capitals and other large cities high schools are found with a

general course and with trade, farming, domestic work, and teaching courses, and there are, besides, special technical schools supported by the local or insular government including the Philippine School of Arts and Trades, the Philippine Normal School, School of Commerce, Nautical School, etc. Normal schools were reported to be developing rapidly in several of the islands. A serious problem has been the adjustment of the educational system to the needs of the Moros. These Mohammedan natives occupy at least one-fourth of the Philippine territory. After the American colonization of the islands nothing could at first be done among them in the way of education. The disarmament policy begun by General Wood in 1913 was practically completed under General Pershing in 1913. Meanwhile in the more peaceful centres schools were opened. In 1921 the schools in the Moro territory were reported as having over 40,000 pupils.

AGRICULTURE. The year 1920 was a record year in production, according to the preliminary report of the Department of Agriculture, as illustrated by the following statistics: The value of the six most important agricultural products of the Philippines—rice, sugar, abaca (hemp), cocoanuts, tobacco, and corn, for the year 1920 amounted to \$343,500,000. In 1919 the money value of the same products was \$219,000,000, in 1918 \$175,000,000, and in 1917, \$120,500,000. While the increase in value was partly due to the high prices, the increase in the area cultivated and the quality of the products helped to swell the value of the production indicated. In 1920 the area of land cultivated, or planted to rice was 1,484,895 hectares (2.47 acres equals one hectare) as compared with only 1,321,339 hectares for 1919; showing an increase of 7 per cent. The rice produced in 1920 was sold in the municipal markets for 254,856,395 pesos, an increase of 37 per cent over that of 1919. The total production in rice was 1,725,726,600 litres. The area planted to corn in 1920 was 537,135 hectares, with a production of 532,907,380 litres, valued at 54,997,315 pesos, whereas in 1919, the area planted was only 436,715 hectares, the corn produced from it being valued at 37,391,425 pesos, indicating an increase of 25 per cent for 1920; 599,386 hectares were planted to abaca (Manila hemp), with a production of 165,081,480 kilos, valued at 63,058,847 pesos; whereas, in 1919, the area cultivated was 515,563, with a production of 148,340,000 kilos, valued at 85,006,006 pesos,—an increase of 3 per cent for 1920. The production of cocoanuts in 1920 amounted to 79,406,104 trees, valued at 122,188,891 pesos, as compared with 74,650,102 cocoanut trees in 1919, valued at 75,438,291 pesos. There were 197,403 hectares planted to sugar cane—with a production of 425,580,503 kilos, valued at 159,257,117 pesos, as compared with 200,199 hectares of land cultivated in 1919, and a production of 411,272,659 kilos, valued at 74,452,819. The significant fact of these figures is that while a decrease of 1 per cent in the area cultivated is shown, the value of the crop increased 3 per cent. The production of tobacco in 1920 was 64,695,534 kilos of leaf tobacco, from 101,123 hectares, valued at 28,765,947 pesos; as against 56,497,740 kilos in 1919 from 73,659 hectares, valued at 17,585,449 pesos; an increase in the value of the crop of 18 per cent for 1920.

COMMERCE. The following information in

respect to the foreign trade during 1920 was supplied by the Philippine Bureau of Customs:

The trade of the islands for the year 1920 was the largest ever recorded since the American occupation, amounting in value to 601,124,276 pesos. Of this amount 298,876,565 pesos represented the value of imports and 302,247,711 pesos that of the exports. Both of these figures are larger than the corresponding ones for previous years since 1899. On account of the greater value of the exports the balance of trade at the close of the year was in favor of the Islands to the amount of 3,371,146

crease both as to imports and exports, except the United Kingdom, China, the French East Indies, Hongkong, France, Siam, Switzerland, Japanese China, the Netherlands, Germany, Norway, Belgium, and British Africa, the exportation of Philippine products to all of which showed a decrease; while on the other hand imports from Australasia, Spain, Dutch East Indies, and Japanese China showed a decrease. The following tables show the values of imports from, exports to, and total trade with the different countries for 1920 and 1919:

VALUES OF IMPORTS, EXPORTS, AND TOTAL TRADE BY COUNTRIES ARRANGED CONSECUTIVELY ACCORDING TO THE VOLUME OF TRADE

Countries	1920			1919		
	Imports, pesos	Per cent of total imports	Exports, pesos	Per cent of total exports	Total trade pesos	Per cent of total trade
1. United States.....	184,579,556	61.76	210,432,525	69.62	395,012,081	65.71
Hawaii.....	3,664,866	1.23	645,759	.21	4,310,625	.72
Porto Rico.....	159	.....	.....	.....	159	.....
Guam.....	20,355	.01	202,949	.07	223,304	.04
2. Japan.....	32,178,231	10.77	14,886,041	4.93	47,064,272	7.83
3. United Kingdom.....	10,279,596	3.44	24,279,976	8.03	34,559,572	5.75
4. China.....	21,487,364	7.19	4,428,117	1.47	25,915,481	4.31
5. Hongkong.....	1,074,539	.36	13,885,677	4.59	14,960,216	2.49
6. Spain.....	1,475,592	.49	11,403,359	3.77	12,878,951	2.14
7. French East Indies.....	9,356,286	3.13	870,598	.29	10,226,884	1.70
8. Australasia.....	8,078,879	2.70	2,120,903	.70	10,199,782	1.70
9. British East Indies.....	5,740,140	1.92	3,905,307	1.29	9,645,447	1.61
10. Siam.....	8,629,896	2.89	103,554	.03	8,733,450	1.45
11. Netherlands.....	435,291	.14	6,857,132	2.27	7,292,423	1.21
12. France.....	3,841,401	1.28	1,987,081	.66	5,828,482	.97
13. Dutch East Indies.....	4,798,121	1.61	726,191	.24	5,524,314	.92
14. Germany.....	693,526	.23	2,094,298	.69	2,787,824	.46
15. Canada.....	192,792	.06	1,814,398	.60	2,007,190	.33
16. Switzerland.....	1,829,901	.61	60,987	.02	1,890,888	.31
17. Belgium.....	26,141	.01	786,769	.26	812,910	.14
18. Italy.....	211,048	.07	452,659	.15	663,707	.11
19. Denmark.....	103,098	.03	.....	.....	103,098	.02
20. Japanese-China.....	180	.....	90,437	.03	90,597	.02
21. British Africa.....	33,184	.01	39,856	.01	72,990	.01
22. Sweden.....	46,299	.02	.....	.....	46,299	.01
23. Austria-Hungary.....	23,039	.01	266	.....	23,305	.....
24. Norway.....	9,705	.....	834	.....	10,539	.....
25. Other countries.....	67,450	.03	172,038	.06	239,488	.04
Total.....	298,876,565	100.00	302,247,711	100.00	601,124,276	100.00

pesos. The volume of cargo imported during the year, about 5 per cent, of which was for transshipment to foreign ports, was 1,643,361.25 tons, as compared with 1,086,337.65 tons in 1919, while the exports amounted to 580,125.86 tons, compared with 571,659.02 tons for the previous year. It will thus be seen that during the last two years imports largely exceeded the exports in quantity, and the balance of trade in 1919 naturally resulted against the Islands. It will therefore strike one as surprising to note that there was a favorable trade balance in 1920, explainable only through inferring that increased prices for Philippine staples prevailed in foreign markets, to the evident advantage of the commerce of the Islands.

Of the different countries trading with the Islands during the year, the United States consumed almost 65½ per cent of the trade. The balance was distributed among the other countries, the largest part going to Japan (7.83 per cent); the next, to the United Kingdom (5.75 per cent); the third, to China (4.31 per cent); the fourth, to Hongkong (2.49 per cent); the fifth, to Spain (2.14 per cent); and the rest in small portions to other countries. Compared with the year before, during the year under consideration the two principal countries doing business with the Islands, to wit, the United States and Japan, registered an increase both in their imports from and exports to the Islands. Trade with other countries also showed an in-

crease both as to imports and exports, except the United Kingdom, China, the French East Indies, Hongkong, France, Siam, Switzerland, Japanese China, the Netherlands, Germany, Norway, Belgium, and British Africa, the exportation of Philippine products to all of which showed a decrease; while on the other hand imports from Australasia, Spain, Dutch East Indies, and Japanese China showed a decrease. The following tables show the values of imports from, exports to, and total trade with the different countries for 1920 and 1919:

HEALTH AND SANITATION. The year 1920 was relatively free from the major epidemic diseases. The development and adoption of the health index system materially aided in the early detection and prompt implantation of eradication measures against such maladies. The mortality from smallpox was reduced to about 16 per cent, compared with that of the year before, and the mortality from cholera to less than one-tenth of 1 per cent. There were 50 per cent less deaths from dysentery, and typhoid fever also showed an appreciable reduction. Anticholera vaccination had proved its usefulness as a supplementary measure in stamping out incipient outbreaks of the disease and the partial results of the modern treatment of leprosy obtained at San Lazaro Hospital by the Investigating Committee brought the hope of cure to many as well as their redemption as outcasts from society. Four additional provinces were organized into regular health districts, leaving but one unorganized province in the Division of Sanitation in the Provinces, which was in process of organization at the end of the year. Malaria and tuberculosis remained the chief causes of morbidity and mortality in the Philippine Islands. In no other diseases perhaps can the influence of sanitary education be employed to better advantage than in these. Both are easily preventable and the means of infection have been known even to the laity for more than

three decades. Owing to the lack of complete morbidity statistics on the above diseases, only the mortality figures are given: During 1920, malaria claimed 24,440 victims, as against 33,444 in 1919, and tuberculosis 29,572 in 1920, as against 30,902 in 1919.

FINANCE. The following table shows the budget figures for four years:

in 1919, showing a slight decrease. Boats of other nationalities, including Philippine vessels, also registered decreases in transporting the Islands' importations, with few exceptions. As to Philippine products exported abroad those transported in American bottoms had the greatest value, reaching the figure of 153,664,815 pesos, while in 1919 they only transported 97,042,637

	1917	Fiscal year ending Dec. 31—		1920
		1918	1919	
Credits				
Balance from prior year.....	\$ 7,516,079.66	\$12,202,341.51	\$17,799,372.27	\$14,271,539.17
Revenues:				
Customs.....	7,575,917.11	8,786,325.90	7,815,856.76	9,516,894.97
Internal.....	10,553,135.63	13,962,598.99	15,300,947.08	17,703,442.81
Miscellaneous.....	9,261,567.98	11,596,127.68	13,163,157.75	16,408,918.49
Surplus gold standard fund.....	732,763.66		3,563,500.00	
Proceeds from sale of Manila port works and improvement bonds.....				6,076,200.00
Total revenue.....	28,123,384.38	34,345,052.57	39,843,461.59	49,702,456.27
Total credits.....	35,639,464.04	46,547,394.08	57,642,833.86	63,973,995.44
Debits				
Expenditures:				
Bureaus and offices.....	14,810,953.82	12,385,245.81	17,304,996.40	16,706,216.10
Miscellaneous.....	1,106,135.86	395,722.66	403,107.13	413,841.62
Fixed charges.....	1,083,981.06	1,123,583.87	1,158,268.85	1,262,503.74
Aid to provinces and municipalities.....	4,439,906.07	4,997,023.74	7,064,814.22	6,736,704.30
Public works.....	882,143.91	1,352,040.52	2,423,889.04	3,647,906.46
Purchase of investments and securities.....	1,114,001.82	1,968,931.02	7,265,380.16	2,483,563.28
Revenue service.....		6,525,476.19	7,780,896.89	10,754,403.87
Surplus:				
Cash.....	10,813,831.48	15,072,004.58	8,734,911.84	14,468,081.45
Other.....	1,388,510.03	2,727,367.69	5,536,627.33	7,500,774.72
Total debits.....	35,639,464.04	46,547,394.08	57,642,833.86	63,973,995.44

SHIPPING. The actual number of vessels of different nationalities trading with the Islands during the year was 450, with a total net tonnage of 1,400,555.44, as against 306 in 1919, with a total net tonnage of 880,831.59. Almost 33 1/2 per cent of these vessels was of American registry, the number being 153, net tonnage 579,164.41. Second on the list was the number of British vessels, the same being 120, net tonnage 399,094.66, and third the Japanese, with a total number of 177, net tonnage 328,092.74. British and Japanese vessels have increased in number compared with the previous year. Philippine vessels are fourth. Of the goods imported into and exported from the Philippine Islands during the year those carried in American vessels were valued at 259,643,836 pesos, which was more than those transported in them in 1919; in English bottoms, at 215,220,275 pesos, also more than the preceding year; in Japanese ships, at 70,235,674 pesos, likewise more than the year before; in Spanish boats, at 12,918,428 pesos, which was more than the year previous. Philippine vessels, however, which in 1919 stood fourth in importance in the carrying trade among the vessels of different nations, this year retrograded to the extent of transporting only 5,242,209 pesos worth of merchandise, when the year before these boats had to their credit 16,180,685 pesos worth of goods carried. Of the goods imported into the Islands during the year those carried in British vessels had the greatest value, amounting to 138,082,663 pesos, whereas in 1919 they only carried 73,295,196 pesos. American bottoms stood second, the value carried being 105,979,021 pesos, as against 84,789,950 pesos in 1919. Japanese ships imported goods to the value of 30,464,729 pesos, as compared with 43,688,317 pesos

pesos worth of these goods. British vessels in the carrying of our exports were in the second place, with the Japanese ships standing third, the figures being 77,137,612 pesos and 39,770,945 pesos, respectively, compared with 75,547,467 pesos and 25,370,947 pesos, respectively, for 1919. On the other hand, boats of other countries, including Philippine vessels, registered decreased spaces in taking Philippine products to foreign markets, with few exceptions.

HISTORY

THE NEW GOVERNOR-GENERAL. Francis Burton Harrison after serving eight years resigned, February 5. President Harding nominated as his successor, Major-General Leonard C. Wood. He had previously appointed General Wood along with W. Cameron Forbes, the former governor-general, to investigate and report on the question of Philippine independence, and during the summer this mission was making a tour of inspection in the Islands. General Wood assumed office October 15, and at once outlined his programme in his inaugural address. The main points in it were an efficient and progressive administration in the spirit of the Jones bill and government of the people by their representatives to the extent provided for in that bill. Declaring that the people of the Philippines had made wonderful progress during the last 23 years, he said there must be no turning back. He attributed this progress not only to the Filipinos but to the unselfish aid of many loyal Americans who had introduced improvements. He emphasized also the aid rendered by the church, and declared that upon the firmness of their religious faith depended the real stability and progress of the Islands. As to education he said it must be free to all and

accord equal opportunities to women. The judiciary must be independent and absolutely outside politics. He laid especial emphasis on the need of proper sanitary and health conditions as indicated by the alarming circumstance that one-third of all children born in the Islands died in the first year. Measures must also be taken for the cure of lepers. Other points noted in his address were the necessity of furthering public works, developing agriculture, expanding natural resources, building up commerce, the instruction of public opinion, the promotion of the study of the English language and the strengthening of the spirit of solidarity, in all of which measures the coöperation of the people themselves was required.

DEMAND FOR INDEPENDENCE. Many arguments were published during the year from prominent Filipinos in favor of independence and in respect as to the question whether it was actually desired by the people. It was pointed out that every legislature of the Islands had adopted a resolution or an address asking for complete independence. The representatives in so doing had the enthusiastic support of their constituents. At every public meeting the great eagerness with which independence was desired was manifest, and this was true of every part of the Islands. As to the question of illiteracy it was argued that the Islands on the whole were less illiterate than the American colonies when they fought the Revolutionary War. The movement could not be regarded as the work of ambitious leaders who wished merely to advance their own ends. The fear of any domination by the Japanese was dismissed as groundless. On the whole the control of the United States had been fair and it was true that after 1916 the people had been securing an increasing share in the government. Arguments for independence did not rest on the view that the control by the United States had been unjust or oppressive, but simply arose from the natural desire of the people to determine its own destiny and express its own spirit in its government. On December 1, a joint resolution of the legislature was transmitted to President Harding with reference to the Disarmament Conference, requesting that whenever the interests of the Island should in any way be affected by the deliberations of the Conference, the government of the United States should consult the wishes of the Filipino people by calling their representatives into its council.

THE COMMISSION'S REPORT. The report of the Special Commission, consisting of Major-General Leonard Wood and W. Cameron Forbes, which began its investigation on May 4 was completed, October 8, and published soon afterwards. It gave a detailed account of the resources, the condition of the people, and the progress under the American administration. On the main point, namely, the question of separation from the United States, its recommendation were as follows:

"1. We recommend that the present general status of the Philippine Islands continue until the people have had time to absorb and thoroughly master the powers already in their hands.

"2. We recommend that the responsible representative of the United States, the Governor General, have authority commensurate with the responsibilities of his position. In case of failure to secure the necessary corrective action by the

Philippine Legislature, we recommend that Congress declare null and void legislation which has been enacted diminishing, limiting, or dividing the authority granted the Governor General under act No. 240 of the Sixty-fourth Congress, known as the Jones bill.

"3. We recommend that in case of a deadlock between the Governor General and the Philippine Senate in the confirmation of appointments that the President of the United States be authorized to make and render the final decision.

"4. We recommend that under no circumstances should the American Government permit to be established in the Philippine Islands a situation which would leave the United States in a position of responsibility without authority."

PHILIPS, F. C. British novelist and dramatist, died in London, April 21. He was born at Brighton, England, Feb. 23, 1849; educated at Brighton College and then served in the army for three years. He was admitted to the bar in 1884 but soon afterwards devoted himself to the writings of novels and dramas and contributing to the leading London periodicals. The list of his works is too long for reproduction here but includes *As in a Looking Glass*; *Jack and Three Jills*; *A Full Confession*; *Young Mr. Atansie's Courtship*; *A Doctor in Difficulties*, *The Strange Adventures of Lucy Smith*. His plays included *The Dean's Daughter* (with Sydney Grundy); *A Free Pardon* (with Leonard Merrick), etc.

PHILLIPS UNIVERSITY. A non-sectarian co-educational institution, situated at East Enid, Okla. founded in 1907. The enrollment for 1921 was 1203. There were 53 members of its faculty. The assets including productive endowment are \$254,870. President, Isaac Newton McCash, LL.D.

PHILOLOGY, CLASSICAL. In 1921, classical scholarship in America suffered severe blows in the deaths of Charles E. Bennett, John M. Burnam, Samuel Ball Platner, and Tracy Peck. Accounts of their careers will be found elsewhere in this volume of the YEAR BOOK.

Late in the year *The Year's Work in Classical Studies, 1920*, appeared, at Bristol, England. The volume, smaller than usual, because, as the Preface says, "It is increasingly difficult to find scholars with leisure sufficient to enable them to write articles" for this work, contained surveys of the books and articles published in 1920 on Roman Law; Latin Palæography; Greek Literature; Latin Literature; Greek and Roman Religion; Grammar, Lexicography and Metric; and Italian Archaeology and Excavation.

At this point attention may be called to certain other means whereby one may, to a greater or less extent, control, in particular, the articles scattered in periodicals: the summaries or abstracts in *The Classical Weekly* (under the caption "Classical Articles in Non-Classical Periodicals"), *The Classical Quarterly*, *The Classical Review*, and the *Philologische Wochenschrift* (on all these see more, below).

To the *Loeb Classical Library* (see YEAR BOOKS for 1911-20) were added, on the Greek side, translations of Apollodorus, *Bibliotheca* (two volumes), Sir J. G. Fraser; in one volume, *Cylinmachus* and *Lycophron*, A. W. Mair, and the *Phænomena* of Aratus, G. R. Mair; Herodotus (the first two of four volumes), A. D. Godley; Lucian (the third of eight volumes), A. M.

Harmon; Menander, *The Principal Fragments*, Francis G. Allinson; Plato, vol. ii (containing the *Theaetetus* and the *Sophistes*), H. N. Fowler; Plutarch, *Lives* (the tenth of eleven volumes), B. Perrin; *Thucydides* (the third of four volumes), C. F. Smith; Xenophon, *Hellenica*, VI-VII, *Anabasis*, I-III, by C. L. Brownson. On the Latin side were added versions of Ausonius, vol. ii, H. G. Evelyn White; *Quintilian* (the first two of four volumes), H. E. Butler; *Sallust*, J. C. Rolfe. The name of Professor Allinson should be added to those given in the YEAR BOOK for 1920 as names of American contributors to this Library.

Quite apart from the *Loeb Classical Library*, there is very great activity in the publication of translations of parts of Greek and Latin literature. There is, however, no space to go into this in detail. Mention must, nevertheless, be made of the translation of all the works of Aristotle, which has been under way for some years, under the editorship of W. D. Ross (Oxford University Press). Five of the eleven volumes have been published. For notice of parts, by St. George Stock, see *The Classical Review*, xxxv. Two renderings of Lucretius must also be named. R. C. Trevelyan translated *Selections*, in verse (for a notice of the book, by C. Knapp, see *The Classical Weekly*, xv), and Sir Robert Allison translated the whole poem of Lucretius, in verse (for a notice of this, by Cyril Bailey, see *The Classical Review*, xxxiv). There has been, also, much interest in the effort to translate Horace. The London Society for the Promotion of Christian Knowledge has published the first of five volumes of a translation of the *Bibliotheca* of Photius, which will be useful to many.

In *The American Journal of Philology*, xlii, were published the following articles: "And and Or," W. H. Kirk (a discussion of passages, Latin and English, showing a copulative conjunction instead of the expected disjunctive conjunction); "Plato's Hedonism," T. D. Goodell ("an elevated doctrine, wholly consistent with the entire body of his ethical teaching"); "Clitarchus," R. B. Steele; "Petrarch's Africa," W. P. Mustard; "Comic Terminations in Aristophanes, Part V," C. W. Peppeler; "Chansons de Geste and the Homeric Problem," W. P. Shepard; "Vulgate Homeric Papyri," G. M. Bolling; "Word-Ends and Pauses in the Hexameter," E. H. Sturtevant; "Original Elements in Cicero's Ideal Constitution," C. W. Keyes ("in the constitution which he composed for a Roman Republic of the ideal future, he has shown far more originality than has ever been recognized"); "The Carmen Sæculare of Horace," Tenney Frank (an attempt, via a special study of *cæsura* in the poem, to determine which stanzas were sung by the boys alone, which by the girls alone, and which were sung antiphonally, and to prove who really are the chief deities of the poem).

The fourth number of this volume appeared on October 23, the ninetieth anniversary of the birth of Professor Basil Lanneau Gildersleeve, for forty years its editor; the whole volume was dedicated to him. There was also in this number an "Index Scoliodromicus," of thirteen pages, to Professor Gildersleeve's extrasyntactical contributions to this periodical, supplementing the "Indiculus Syntacticus," *American Journal of Philology*, xxxvi, which gave access to Professor Gildersleeve's very valuable notes in this periodical in the sphere of syntax.

Important reviews in this volume are those of Hans Fischl, *Ergebnisse und Aussichten der Homeranalyse*, by G. M. Bolling; of E. H. Sturtevant, *The Pronunciation of Greek and Latin*, by R. G. Kent; of Ulrich von Wilamowitz-Moellendorf, *Die Ilias und Homer*, by G. M. Bolling; of Charles Upson Clark, *Collectanea Hispanica*, by E. K. Rand (on this work, see below).

In this volume are to be found also summaries of several foreign periodicals: *Glotta*, x (1919), by Franklin Edgerton; *Hermes*, lv, 1-2 (1920), by H. L. Ebeling; *Philologus*, lxxvi, 1-2 (1920), by G. D. Kellogg; *Revue de Philologie*, xliii, 3-4 (1919), by W. P. Mustard; *Rheinisches Museum*, lxxiii, 1-2, by R. P. Strickler; *Rivista di Filologia e di Istruzione Classica*, xlviii, 1-4 (1920), by W. P. Mustard; *Romania*, xlv (1918-19), by G. C. Keidel.

From *Classical Philology*, xvi, we mention the following articles: "TA ΓΕΡΡΑ ΕΝΕΠΙΜΗΡΑΖΑΝ, Demosthenes xviii. 169," Charles D. Adams (the writer defends the manuscript reading, as cited in his title, and supports, with new arguments, an old explanation, that the γέρρα were the mats of which the shop-booths were made; when news came that Philip of Macedon had seized Elateia, these were burned, to clear the agora or market-place, that the militia might camp there under arms); "Land Registers of Western Asia under the Seleucids," W. L. Westermann; "Homer as the Poet of the *Thebais*," John A. Scott (the author rejects as worthless the evidence usually advanced as proving that Homer was recognized, as early as the seventh century B. C., as the author of the poem of the Epic Cycle called the *Thebais*); "The *Latina Colonia* of Livy xl. 43," Lily R. Taylor (Livy's reference to the establishment of a colony in 180 B. C. is right; the colony was established at Pisa, not at Luca, as scholars generally have supposed); "Studies in Greek Noun-Formation. Dental Terminations II. 1-3" (three articles), C. D. Buck; "Latin and Greek Etymologies," Francis A. Wood; "Two Sophoclean Cruxes," W. A. Heidel (the article includes a very interesting attempt to explain away, by a simple emendation, the famous crux in Sophocles, *Antigone* 4, due to the negatives); "The Tradition of Greek Arithmology," F. E. Robbins; "The Origin of the Cult of the Lares," G. J. Laing; "Dryden's *Lucian*," Hardin Craig; "The Uninundated Lands in Ptolemaic and Roman Egypt," W. L. Westermann; "On Vergil 'Eclogue' iv. 60-63," Duane Reed Stuart; "Ego Emphatic and Unemphatic, in Rises and Falls of Old Latin Dramatic Verse," E. A. Sonnenschein; "The Megarian Decrees," R. J. Bonner; "The Persian Army and Tribute Lists in Herodotus," A. G. Laird; "Callimachus' Epigram on the Nautilus," H. W. Prescott; "The Prytaneum in the Athenian Amnesty Law," Gertrude Smith; "Ablative of the Efficient," R. B. Steele.

The most important review in this volume is that of C. Autran, *Phéniciens, Essai de Contribution à l'Histoire Antique de la Méditerranée*, J. H. Breasted. Others are those of Eduard Norden, *Die Germanische Urgeschichte in Tacitus Germania*, G. J. Laing; of Theodor Le Roux, *De Richardo Bentley aique de Ratione eius Critica*, B. L. Ullman; of E. Kornemann, *Mausoleum und Tatenbericht des Augustus*, S. B. Platner; of E. Meyer, *Cæsars Monarchie und das Principat des Pompeius*, Tenney Frank; of Carlo Pascal, *La Critica dei Poeti Romani in Orazio*, B. L. Ullman; of W. R. Hardie, *Res Metrica*, Paul Shorey.

In *The Classical Journal*, xvi-xvii, appeared the following articles: "Cicero and the Agrarian Proposals of 63 B. C.," Evan T. Sage (the author holds that the purpose of the agrarian proposals of Rullus was to offer Cicero, then consul, a chance to relieve discontent and to improve economic conditions, but to offer the chance in a form that would court refusal, and so emphasize the unwillingness of Cicero and the senatorial party to do anything for the poor. There is an interesting argument, too, that, down into his consulship, Cicero was a democrat, though of a moderate sort; he became a conservative and upholder of the senate during his consulship); "Two Imperial Poets—Horace and Kipling," L. E. Lord; "The Latinisms in Shakespeare's Diction," Edith Frances Clafin; "An Antique League of Nations," C. H. Weller (an account of five new inscriptions, found at Epidauros, during excavations in 1916 and 1918, which throw light on the workings of the Achaean League); "Training Soldiers for the Roman Legion," S. E. Stout; "Archæology in Italy and its Contribution to Philology," G. J. Laing; "Some Features of Ovid's Style: III. Ovid's Methods of Ordering and Transition in the *Metamorphoses*," Frank J. Miller; "Ad Alpes," H. C. Nutting (a story, in Latin, of the travels of a fictitious Roman family, in the second century A. D.); "Catullus," H. J. Rose; "Trial by Jury in Athens and America," J. O. Lofberg; "The Humor of the Greek Anthology," J. W. Hewitt; "When Did Cæsar Defeat the Usipates and Teneteri?," A. T. Walker; "Cicero and his Critics," M. S. Slaughter.

Of the reviews in this volume the following are to be mentioned: of Aristides Phourides, *Kostas Palamas: Life Immobile* (poems, translated by a modern Greek, from the Greek of Kostas Palamas, the leading poet of contemporary Greece), W. S. Ebersole; of H. M. Hubbell, *The Rhetorica of Philodemus*, V. D. Hill; of H. G. Wells, *The Outline of History*, L. E. Lord; of T. D. Goodell, *Athenian Tragedy*, H. W. Prescott.

In *The Classical Weekly*, xiv-xv, appeared the following articles: "Lucretius 1.1-28: A Study in Interpretation and Punctuation," C. Knapp; "An Animal Weather Bureau," E. S. McCartney (a valuable running commentary on certain passages in Vergil, *Georgics*, Book 1, in which Vergil sets forth the weather signs derived in ancient times from animals); "Browning's Use of the Classics," Elisabeth Nitchie; "Some Illustrations of Jwenal's Third Satire," C. Knapp; "Æneid 2.783 and Æneid 3 Again: Æneas's Attitude Toward Visions," E. Adelaide Hahn (in Æneid 3, Æneas disregards what the shade of his wife Creusa had said to him, in Æneid 2.783, concerning Hesperia and Lydius Thybris, because he thinks of her as mortal: he heeds only visions from the gods); "An Illustration of Horace, *Sermones* 1.3," C. Knapp; "Some Spheres of Roman Originality," R. B. Steele; "Horace, *Sermones* 1.3.29-34: A Matter of Style," C. Knapp; "The English Essay and Some of its Ancient Prototypes," R. M. Gummere; "A Classification of the Similes in the *Argonautica* of Apollonius Rhodius," Eliza G. Wilkins; "A Classification of the Similes in Vergil's *Æneid* and *Georgics*," Eliza G. Wilkins; "Horace, *Epodes* 2.33-34," C. Knapp; "The Classical Element in the Poems of Rudyard Kipling," H. W. Gilmer; "Virgilian Determinism," A. S. Pease (a criticism—adverse—of an article by Tenney Frank, "Epi-

curean Determinism in the *Æneid*," *American Journal of Philology*, xl; to Professor Pease, as to most scholars, the dominant philosophical influence in the *Æneid* is Stoicism); "New Light on Some Problems of Ancient History," Ida Carleton Thallon (a study of the light thrown on our conceptions of ancient history by excavations at various points in Greece and Italy, especially at Sparta, and at points in Etruria); "The Tragedy of Latinus," Catharine Saunders (in Æneid vii-xii we have the tragedy of the House of Latinus, balancing the tragedy of Dido in Æneid i-vi); "Prometheus Bound of Æschylus," W. K. Prentice; "Homer and Recent Discoveries," A. Shewan (a fine article, on the light thrown by the excavations of the last fifty years on Homer and the study of Homer); "On the Frequency of Short Words in Verse" (Greek, Latin, and English), E. H. Sturtevant.

Of reviews in these volumes the following may be mentioned: of Franz Studnicska, *Das Bildnis Menanders*, W. N. Bates; of J. Geffcken, *Die Griechische Tragödie*, and of A. Körte, *Die Griechische Komödie*, Edward Fitch; of Ulrich von Wilamowitz-Moellendorf, *Die Ilias und Homer*, S. E. Bassett; of R. O. Jolliffe, *Phases of Corruption in Roman Administration in the last Half-Century of the Roman Republic*, Ethel H. Brewster; of Sir Thomas L. Heath, *Euclid in Greek, Book I. With Introduction and Notes*, M. W. Humphreys, and David Eugene Smith; of Robert Elliott, *Transition in the Attic Orators*, LaRue Van Hook; of W. M. Caldwell, *Hellenic Conceptions of Peace*, W. K. Prentice; of Agnes Carr Vaughan, *Madness in Greek Thought and Custom*, D. M. Robinson; of F. A. Marshall, *Discovery in Greek Lands. A Sketch of the Principal Excavations and Discoveries of the Last Fifty Years*, D. M. Robinson; of Henry Jewell Bassett, *Macrinus and Diadumenianus*, A. E. R. Boak; of Rudyard Kipling, Charles Graves, and E. Godley, etc., *Q. Horati Flacci Carminum Liber Quintus*, G. D. Kellogg; of Gordon J. Laing, *The Genitive of Value in Latin and Other Constructions with Verbs of Rating*, A. L. Wheeler; of Ivan M. Linforth, *Solon the Athenian*, W. S. Ferguson; of A. Diels, *Antike Technik*, M. W. Humphreys; of James T. Allen, *The Greek Theater of the Fifth Century Before Christ*, D. M. Robinson; of A. Gudeman, *P. Cornelii Taciti De Germania*, B. L. Ullman; of R. R. Marett, *Psychology and Folk-Lore*, H. L. Ebeling; of Frederick Poulsen, *Delphi*, D. M. Robinson; of John R. Crawford, *De Bruma et Brumalibus Festis*, H. W. Wright; of Alice Hill Byrne, *Titus Pomponius Atticus: Chapters of a Biography*, William D. Gray.

The Transactions of the American Philological Association, li, contained the following papers, read before the Association, at Baltimore, in December, 1920: "Thermopylæ and Artemisium," W. K. Prentice; "The Alleged Conflict of the Accents in Latin Verse," R. G. Kent; "Prorsus," J. C. Rolfe (an interesting study of the Latin word *prorsus*, both as an adjective and as an adverb); "The Tauric Maiden and Allied Cults," C. A. Manning; "Bellerophon's Tablet and the Homeric Question in the Light of Oriental Research," N. Schmidt; "Prudentius and Christian Humanism," E. K. Rand; "Spontaneous Generation and Kindred Notions in Antiquity," E. S. McCartney; "The Worship of Augustus in Italy During his Lifetime," Lily Ross Taylor; "The Exposure of

Infants at Athens," LaRue Van Hook (the author holds that there is no sound evidence for the prevalence of the exposure of new-born infants in Athens of the classical period); "The Juvenile Works of Ovid and the Spondaic Period of his Metrical Art," R. S. Radford; "The *Ἀρχιλοχοί* of Cratinus and Callias ὁ λακκόπλουτος," R. H. Tanner.

As in the YEAR BOOK for 1917-20, attention is called to the fact that in the *Bulletins* or *Studies* published under the auspices of various Universities papers appear that fall within the purview of this article.

In the *Proceedings of the American Academy of Arts and Letters*, lvi, appeared "Anaximander's Book: The Earliest Known Geographical Treatise," W. A. Heidel. For a notice of the book, by C. W. E. Miller, see *American Journal of Philology*, xlii. In the *Transactions of the Connecticut Academy of Arts and Sciences*, xxiv, Charles Upson Clark published *Collectanea Hispanica*, an account of 214 manuscripts, photographed and studied by him in Spain, examples of the Visigothic or Spanish script (for eulogistic reviews of this very important book, see E. K. Rand, *American Journal of Philology*, xlii, and A. C. Clark, *The Year's Work in Classical Studies*, 1920). In the *University of California Publications in Classical Philology*, v, appeared "Notes on the *Silvæ* of Statius, Book V," W. A. Merrill.

Harvard Studies in Classical Philology, xxxii, contained three articles: "The Commentary on *Æschylus's Prometheus* in the Codex Neapolitanus," H. W. Smyth; "Prophecy in the Ancient Epic," C. H. Moore (the article deals with prophecy in Homer, the *Argonautica* of Apollonius Rhodius, the *Æneid* of Vergil, the *Punica* of Silius Italicus, the *Argonautica* of Valerius Flaccus, and the *Thebais* of Statius); "Studies in the Minoan Hieroglyphic Inscriptions. I. The Phæstos Whorl," C. Burridge (the author believes that it is now possible to read many of the Minoan hieroglyphic inscriptions, including that on this "Phæstos Disk," and hopes soon to publish a book on this theme).

In the *University of Illinois Studies in Language and Literature*, v, appeared "Ysopet-Avionnet: The Latin and French Texts," edited by Kenneth McKenzie and William A. Oldfather. Volume vi contained "M. Tulli Ciceronis De Divinatione, Liber Primus," edited, with notes, by Arthur Stanley Pease; this is the first English commentary, since 1828, on any part of this important work of Cicero.

In the *University of Missouri Studies*, iii, *Social Science Series*, Lucile Craven published "Antony's Oriental Policy until the Defeat of the Parthian Expedition." In *Public Lectures by Members of the University of Pennsylvania, 1919-20*, vii, there was an article entitled "Going to Church in Ancient Rome," G. D. Hadzsits (a study of Roman modes of worship, at altars and in temples). On these lectures see YEAR BOOK for 1920.

In the last days of the year announcement was made that, in January, 1922, there would be published at the University of Iowa the first number of the *Philological Quarterly*, a journal to be devoted to the publication of texts, notes, reviews, and original scholarly articles in the fields of English, Romance, Germanic, Latin, Greek, and Comparative Literature. The contributors are not

to be limited to members of the faculty of the University of Iowa.

From *The Classical Quarterly*, xv, we mention the following articles: "Vindicatæ Platonis III," John Burnet (a discussion of the text in various passages of the *Philebus*, the *Symposium*, and the *Phædrus*); "The Fragments of Lucilius IX. on *EI* and *I*," F. H. Colson; "Notes on Lucretius," Cyril Bailey; "Case-Usage in the Greek of Asia Minor," D. E. Evans; "The Earliest Narrative Poetry of Rome," Ethel Mary Stuart (the author emphasizes the evidence for the existence, prior to Livius Andronicus, of a school of native Italian poetry, consisting of short quasi-lyrical eulogies and dirges, poems of a mythological religious character, half-legendary, half-historical lays, and, finally, poems dealing with authenticated historical characters. She thus harks back to the position of Niebuhr and Macaulay, set forth so interestingly by the latter in the Preface to his *Lays of Ancient Rome*); "The MSS of Callimachus' Hymns," M. T. Smiley; "Caesar's Funeral in Lucan VIII. 729-735," B. L. Ullman; "Isocrates," M. L. W. Laistner; "On Eth. Nic. I. c. 5," C. M. Mulvany (a lengthy discussion of a passage in the *Nicomachean Ethics* of Aristotle); "Nuances in Plautine Metre," F. W. Hall; "Plato's Simile of Light. Part I. The Similes of the Sun and the Line," A. S. Ferguson; "Greek Colour-Perception," M. Platnauer; "The Singular *Nos* in Vergil," E. H. W. Conway (a study of the ways in which Vergil uses the first person plural pronoun with singular meaning. The author applied to Vergil the results of a study of the same matter in Cicero, especially in his *Letters*, published by R. S. Conway, in *Cambridge Philological Society Transactions*, Volume V, Part 1, 1899. For a convenient summary of those views, see R. S. Conway, *New Studies of a Great Inheritance*, first paper).

The Classical Quarterly continued to give summaries of the contents of various periodicals, but from July on it gave such summaries only of "original work." The periodicals thus summarised were: *American Journal of Philology*, (*Berliner Philologische Wochenschrift*, *Bodleian Quarterly Record*, *Classical Philology*, *The Classical Weekly*, *Glotta*, *Hermathena*, *Hermes*, *Indogermanische Forschungen*, *Mémoires de la Société de Linguistique de Paris*, *Mnemosyne*, *Rassegna Italiana*, *Revue de Philologie*).

With the beginning of Volume xxxv of *The Classical Review* the policy of this periodical changed; such articles as appear in it are to be devoted rather to the pedagogy of the classics, and to the popularisation of the ancient humanities. Hence we can mention here only the following: "The Homeric Hymns—XIV, XV," T. L. Agar; "The Rhesus," A. C. Pearson (the author concludes that the internal evidence makes against ascribing the play to Euripides; the external evidence is inconclusive); "The Technique of Vergil's Verse," C. E. S. Headlam; "Virgil's 'Eclogues': A Metrical Clue to the Order of Composition," Alexander J. D. Porteous.

The reviews in this volume, though brief, are often important: we mention those of Gilbert Norwood, *Greek Tragedy*, H. J. Rose; of A. E. Housman, *M. Manili Astronomicum Liber Quartus*, H. W. Garrod; of W. R. Hardie, *Res Metrica*, D. S. Robertson; of J. E. Sandys, *Latin Epigraphy*, W. M. Calder; of A. M. Andreades, *A History of Greek Public Finance*, M. Cary; of J.

Toutain, *Les Cultes Païens dans l'Empire Romain, Tome III*, Cyril Bailey (the volume deals with Cultes Indigènes Nationaux et Locaux, in North Africa, Spain, and Gaul); of Vittorio Macchioro, *Zagreus, Studi sull' Orfismo*, A. W. Pickard-Cambridge; of J. Sargeant, *The Trees, Shrubs, and Plants of Virgil*, H. P. Chalmers; of J. Carcopino, *Vergile et les Origines d'Ostie*, H. E. Butler; of H. E. Butler, *The Sixth Book of the Æneid*, R. S. Conway.

A new department of *The Classical Review* was instituted in this volume. It is devoted to brief summaries of selected materials, mostly reviews, from various periodicals, under such heads as Archaeology, Art, Epigraphy, Geography, History, Law, Lexicography, Linguistics, Metric, Numismatics, Palseography and Papyri, Greek Literature, Latin Literature, Philology, Philosophy, Religion, and Mythology, Science, Textual, Topography. The periodicals thus treated include *The Classical Weekly*, *Deutsche Literaturzeitung*, *Göttingische Gelehrte Anzeigen*, *La Musée Belge*, *Neue Jahrbücher für das Klassische Alterum*, *Philologische Wochenschrift*, *Wochenschrift für Klassische Philologie*.

Two other English periodicals, the *Journal of Hellenic Studies*, and the *Journal of Roman Studies*, contain many articles of wide appeal. From the latter, viii, we mention, for example, "A Great Agricultural Emigration from Italy," W. E. Heitland; "Vespasian's Reconstruction of Spain," R. J. McElderry; "Studies in the Roman Province of Galatia," W. M. Ramsay.

Father A. F. Geyser, S. J., has published *Musa Americana. Fourth Series* (see YEAR BOOKS for 1919-20). This is entitled "Vicus Desertus," and is a Latin version, in hexameters, of Goldsmith's *Deserted Village*. A review of it, by G. D. Kellogg, will appear in *The Classical Weekly*, xv. A good deal of Latin is being written in America, not only in verse, but also in the form of plays, and, in the case of H. C. Nutting's *Ad Alpes* (see above), of a story. Such material may be found especially in *The Classical Journal* and *The Classical Weekly*.

As was noted in the YEAR BOOK for 1920, the work of younger American scholars is best seen in the dissertations presented by them to various Universities in partial fulfillment of the requirements for the degree of Doctor of Philosophy. The Library of Congress published during the year three volumes giving the list of American Doctoral Dissertations printed in 1917, 1918, 1919. To the list given in the last YEAR BOOK may be added: *A Study in the Commerce of Latium from the Early Iron Age through the Sixth Century B. C.* (Bryn Mawr), Louise E. W. Adams; *The Stylistic Influence of the Second Sophistic on the Panegyric Sermons of St. John Chrysostom: A Study in Greek Rhetoric* (Catholic University of America), Thomas E. Ameringer; *The Use of ΕΤΕΙΕ in Fifth-Century Literature* (Chicago), J. W. Beardslee; *The Indicative of Indirect Question in Latin* (Chicago), Alice Freda Bräunlich; *Roman Craftsmen and Tradesmen of the Early Empire* (Pennsylvania), Ethel H. Brewster; *Gaius Verres: An Historical Study* (Cornell), F. H. Cowles; *The Spurious Speeches in the Lycaean Corpus* (Bryn Mawr), Angela C. Darkow; *A Study of the Impersonal Passive of the Ventum Est Type* (Pennsylvania), Alice A. Deckman; *The Supplementary Participle in Herodotus* (Wisconsin), E. J. Filbey; *The Lupercales*

(Columbia), Alberta Mildred Franklin; *Plato's View of Poetry* (Harvard), W. C. Greene; *Studies in Stichomythia* (Chicago), J. L. Hancock; *Notes on the Works and Days of Hesiod* (Chicago), H. M. Hays; *The Pre-Hellenistic Stage in the Evolution of the Literary Art at Rome* (Wisconsin), E. A. Hooton; *The Georgic: A Contribution to the Study of the Vergilian Type of Didactic Poetry* (Johns Hopkins), Lilly Marie Loretto; *The Tradition of the Latin Accent* (Virginia), J. S. McLemore; *On the Second Book of Aristotle's Poetics and the Source of Theophrastus' Definition of Tragedy* (Harvard), A. S. McMahon; *The Cynegetica of Nemesianus* (Cornell), Donnis Martin; *Laus Pisonis* (Cornell), Gladys Martin; *The Consolations of Death in Ancient Greek Literature* (Catholic University of America), Sister Mary Evaristus Moran; *The Use of the Adjective as a Substantive in Horace* (Pennsylvania), A. L. Myers; *The Plebs in Cicero's Day: A Study of Their Provenance and of Their Employment* (Bryn Mawr), Marion Edwards Park; *Lions in Greek Art* (Bryn Mawr), Eleanor Ferguson Rambo; *De Catulli Carmine Sexagesimo Quarto Quaestiones Diversae* (Columbia), L. L. Sell; *A Study of Piety in the Greek Tragic Chorus* (Pennsylvania), H. V. Shelley; *A Study of Exposition in Greek Tragedy* (Radcliffe), Evelyn Spring; *Athenian Political Commissions* (Chicago), Frederick D. Smith; *The Mythology of Vergil's Æneid According to Servius* (New York), J. P. Taylor; *Georgius Gemistus Pletho's Criticism of Plato and Aristotle* (Chicago), John Wilson Taylor; *Madness in Greek Thought and Customs* (Michigan), Agnes Carr Vaughan; "Know Thyself" in Greek and Latin Literature (Chicago), Eliza G. Wilkins; and *The Sacra Idulia in Ovid's Fasti: A Study of Ovid's Credibility in Regard to the Place and the Victims of this Sacrifice* (Pennsylvania), H. W. Wright.

With the year 1920 the periodical known as the *Wochenschrift für Klassische Philologie* came to an end. It had been published at Berlin. It was combined with the *Berliner Philologische Wochenschrift*, and the name of that periodical was changed to *Philologische Wochenschrift*, xli. This is an exceedingly valuable periodical. The reviews, numerous and as a rule detailed, of German, English, French, Italian, and American books and articles constitute its main business. Under the caption "Auszüge aus Zeitschriften," were given abstracts—very brief—of articles in other classical periodicals: *American Journal of Archaeology*, *Archäologischer Anzeiger*, *Anzeiger für Schweizer Altertumskunde*, *Archiv für Geschichte der Philosophie*, *Archiv für Papyrusforschung*, *Archiv für Religionswissenschaft*, *Bayerische Akademie der Wissenschaften*, *Berliner Museum*, *Bulletin de Correspondance Hellénique*, *Byzantinische Zeitschrift*, *Deutsche Rundschau*, *Germania*, *Glotta*, *Geographical Journal*, *Hermes*, *Indogermanische Forschungen*, *Internationale Monatsschrift*, *Internationales Archiv für Ethnographie*, *Jahrbuch des Deutschen Archäologischen Instituts*, *Jahresbericht des Philologischen Vereins zu Berlin*, *Journal des Savants*, *Journal of Hellenic Studies*, *Klio*, *Mitteilungen aus der Historischen Literatur*, *Mitteilungen des Deutschen Archäologischen Instituts*, *Mémoires de la Société de Linguistique de Paris*, *Monatschrift für Höhere Schulen*, *Neue Jahrbücher*, *Philologus*, *Revue Archéologique*, *Revue des Études Grecques*, *Revue de Philologie*, *Rheinisches Museum*, *Sokrates*, *The Classical*

Review, The Classical Weekly, The English Historical Review, Zeitschrift der Deutschen Morgenländischen Gesellschaft, Zeitschrift für die Neueste-Wissenschaft, Zeitschrift für Vergleichende Sprachforschung, etc. Another valuable department, entitled "Resensions-Verzeichnis Philologischer Schriften," gives references to reviews of books in other magazines, with some indication of the nature of the review, as favorable or the reverse.

In the field of history, much work is being done. Works such as Rosenberg, *Einleitung und Quellenkunde zur Römischen Geschichte*, and B. W. Henderson, *The Study of Roman History*, aim to go to the very fundamentals. An essay dealing with the scope and method of historical study is that by W. McDougall, *Anthropology and History*. In the *American Historical Review*, xxvii, John R. Knipping, in "German Historians and Macedonian Imperialism," after studying the spirit and the degree of historical accuracy which historians of the nineteenth and twentieth century in Germany reflected in their treatment of the age of Macedonian expansion under Philip II (358-338 B. C.), concludes that their studies are in "crying need of revision." In a periodical entitled *History*, in October, 1920, there appeared an article, "Some Recent Books on Roman History," by N. H. Baynes, which formed a general review of the subject. In each number of the *American Historical Review* there are notes on new books and articles in the field of ancient history. Particularly interesting, in 1921, were the articles by classical scholars in which attention was called to the inaccuracies and the bias, in matters of ancient history, of H. G. Wells, *Outline of History*. See especially the review, by L. E. Lord, in *The Classical Journal* (see above), and a pamphlet, *Mr. Wells as Historian*, by A. W. Gomme.

Reference was made in the YEAR BOOK for 1920 to C. Autran, *Phéniciens: Essai de Contribution à l'Histoire Antique de la Méditerranée*. For an elaborate review (unfavorable) of the book, by J. H. Breasted, see *Classical Philology*, xvi.

Other books dealing with the earliest history of Europe, and more especially of the Mediterranean Basin, are *Pre-History*, M. C. Burkitt (a study of early cultures in Europe and the Mediterranean Basin); D. Fimmen, *Die Kretisch-Mykenische Kultur*. Books dealing with various aspects of Greek and Roman history, within the historical period, are *Die Ionische Kolonisation*, Fridrich Bilabel (an investigation, on the basis of all literary and epigraphical material available, of the political and religious organization of the Ionic colonies and their relations to the mother cities); *A Short History of Rome to 685 A. D.*, A. E. R. Boak; *A Short History of Antioch*, E. S. Bouchier; Georg Brandes, *Cajus Julius Cæsar, Vol. I*; E. Cavaignac, *Histoire de l'Antiquité* (index volume); G. De Sanctis, *Storia dei Romani. Vol. III: L'Età delle Guerre Puniche*; G. Ferrero, *La Ruine de la Civilisation Antique* (the author holds that the final destruction of senatorial authority under Septimius Severus was the catastrophe from which the decline of the Empire began. He saw in the Great War a similar catastrophic breakdown of civilization. But to Ferrero monarchical authority seems the only legitimate authority); J. Geffcken, *Das Christentum im Kampf und Ausgleich mit der Griechisch-Römischen Welt* (third edition);

Johannes Hasebroek, *Untersuchungen zur Geschichte des Kaisers Septimius Severus*; C. Julian, *Histoire de la Gaule. V. La Civilisation Galloromaine. Etat Matériel*; E. Kornemann, *Mausoleum und Tatenbericht des Augustus*; J. Lesquier, *L'Armée Romaine d'Égypte*; E. Norden, *Die Germanische Urgeschichte in Tacitus Germania* (highly praised by G. J. Laing, in *Classical Philology*, xvi); Ettore Pais, *Fasti Triumphales Populi Romani*, and *Storia Critica di Roma durante i Primi Cinque Secoli, Volume IV*; L. Pareti, *Storia di Sparta Arcaica, Volume I* (the book deals with the period prior to the conquest of Messenia); T. Petersson, *Cicero: A Biography* (much praised, by various reviewers); A. Rostagni, *Giuliano l'Apostata* (a critical study, with translations and annotations, of Julian's political and satirical writings); C. H. St. L. Russell, *The Tradition of the Roman Empire* (the author finds the heart of European history in Rome; starting, then, with "The Making of the Roman Empire," he traces the history of Europe down to the present day); Seeck, *Geschichte des Untergangs der Antiken Welt* (the sixth and last volume); J. A. K. Thomson, *Greeks and Barbarians*; C. Veith, *Der Feldzug von Dyrrachium zwischen Cæsar und Pompeius*, and *Die Feldzüge des C. Julius Cæsar Octavianus in Illyrien in den Jahren 35-33 v. Chr.*; A. von Hofmann, *Das Land Italien und Seine Geschichte*.

In the general field of ancient life, in its various aspects, culture, law, mythology, religion, and the like, we name D. A. Mackenzie, *Myths of Crete and Pre-Hellenic Europe*; K. H. E. DeJong, *Das Antike Mysterienwesen in Religionsgeschichtlicher, Ethnologischer, und Psychologischer Bedeutung* (a thoroughly revised and enlarged edition); C. Robert, *Die Griechische Heldensage. Die Nationalhelden* (Book 2 of Volume ii of L. Preller, *Griechische Mythologie*, fourth edition); L. Bréhier and Mgr. Batiffol, *Les Survivances du Culte Impérial Romain, à-propos des Rites Shintoïstes* (this study, which grew out of the proposal to require officials in Japan to conform to the religion of the Emperor, treats the manner in which the Christians met a similar difficulty in the fourth century. It gives a masterly account of the Imperial cult in Rome and the relation of the Christians thereto); S. Eitrem, *Beiträge zur Griechischen Religionsgeschichte*; P. Roussel, *Les Cultes Égyptiens à Delos du III^e au 1^{er} Siècle av. J. C.* (a collection of all the epigraphical material that has to do with the cult of the Egyptian gods in Delos from the third to the first century B. C.); P. Stengel, *Die Griechischen Kultusaltertümer* (third edition: the book forms Volume v, Part 3 of Müller, *Handbuch der Klassischen Altertumswissenschaft*); Margaretha Bieber, *Die Denkmäler zum Theaterwesen im Altertum* (a well-illustrated study of the extant remains of Greek and Roman theatres); G. Beseler, *Beiträge zur Kritik der Römischen Rechtsquellen, Part IV*; G. Busolt, *Griechische Staatskunde* (third edition); H. Diels, *Antike Technik* (second edition: for a review, by M. W. Humphreys, see *The Classical Weekly*, xv); F. Friedländer, *Darstellungen aus der Sittengeschichte des Roms* (ninth edition; four volumes have appeared); W. E. Heitland, *Agri-cola: A Study of Roman Agricultural Life in the Græco-Roman World from the Point of View of Labour*; B. Schwartz, *Die Öffentliche und Private Urkunde im Römischen Ägypten*.

Pauly-Wissowa, *Real-Encyclopädie der Klassischen Altertumswissenschaft*, an enormous undertaking, time-consuming and expensive, has been making progress. In 1914-21, three and a half volumes, IX, X, XI (Part i), and I A, were published. These cover articles from "Hyaia" to "Komödie," and from "Ra" to "Sarmantho." Because of delays in the preparation of various articles the "Zweite Reihe" of volumes, to be numbered I A, etc., and beginning with the article "Ra," on the River Volga, was started. Supplementband III, covering "Aachen" to "Ad Iuglandem," was published in 1918. These volumes form our latest, and, on the whole, best dictionary of classical biography and geography and of antiquities, in certain phases. They contain comprehensive treatments of such themes as "Hymnos," "Jagd" (hunting), "Iambographien," "India," "Industrie und Handel," "Institutionen," "Interdictum," "Isis," "Isokrates," "Itinerarien," "Iulius" (Caesar), "Iulius (Augustus)," "Iulius (Tiberius)," "Iurisprudentia," "Kalender," "Karten" (maps and plans), "Katabasis" (the descent to the lower world), "Komödie," "Reiterei," "Res Publica," "Sæculares Ludi," "Römische Haus," "Salamis," and "Salustius."

The first volume of Sir John Edwin Sandys's invaluable book, *A History of Classical Scholarship*, in a third edition, carefully revised, covers the period from the sixth century B. C. to the end of the Middle Ages. So, too, Professor Sandys's *Companion to Latin Studies* reached a third edition. In this, the articles on "Topography" and "Flora," in particular, have been carefully revised; the bibliographies have been enlarged.

In the great field of Greek and Latin literature much good work is being done. The study of Homer loses none of its attractiveness. In the *Jahresbericht für Altertumswissenschaft*, No. 182, there was a long survey, by D. Mülher, of the literature on Homer, the "höhere Kritik" for 1912-19. The Unitarians, those who hold that one man composed the *Iliad* and the *Odyssey*, are having their innings in the United States and in England. Especially prominent here in the former country are Professor John A. Scott, of Northwestern University, and Professor Samuel E. Bassett, of the University of Vermont. Opposed to them is Professor G. M. Bolling, of Ohio State University. Professor Scott writes frequently on Homer in *Classical Philology* and *The Classical Journal*. His book, *The Unity of Homer*, forms Volume 1 of the Sather Classical Lectures (University of California Press, 1921). These lectures have been given annually, for some years, at the University of California, but they were not previously published. In the paragraph above dealing with *The Classical Weekly* reference was made to Professor Bassett's review of Wilamowitz, *Die Ilias und Homer*. In England, Dr. Walter Leaf, classical scholar and banker, has recently recanted, and approached closely the position of the Unitarians. Active in England in support of the Unitarian position is A. Shewan (see the paragraphs above on *The Classical Weekly*). Other works on Homer are T. W. Allen, *The Homeric Catalogue of Ships*; W. Bacher, *De Pausaniae Studii Homericis*; Paul Cauer, *Grundfragen der Homerkritik* (third edition); E. Drerup, *Homersche Poetik*, dealing with "Prinzipien und Methoden der Homererklärung"; G. Finsler, *Homer:*

Zweiter Teil, Inhalt und Aufbau der Gedichte, second edition (for a review, by S. E. Bassett, see *The Classical Weekly*, xiv); F. Stürmer, *Die Rhapsodiender Odyssee*. The famous Ameis-Hentze commentary on the *Odyssey* has reached a thirteenth edition, by P. Cauer.

Other works dealing with special authors are P. Petersen, *Geschichte der Aristotelischen Philosophie im Protestantischen Deutschland*; R. J. Walker, *Euripidean Fragments*, and *The Macedonian Tetralogy of Euripides* (a discussion of the fragments of the *Alcmena*, the *Temenus*, the *Temenides*, and the *Archelaus* of Euripides); Giorgio Pasquali, *Orazio Lirico*; E. Stemplinger, *Horas im Urteil der Jahrhunderte*; R. Laqueur, *Der Jüdische Historiker, Flavius Josephus*; Henry Dwight Sedgwick, *Marcus Aurelius* (a biography, told mainly through Marcus's own Letters, together with some account of the Stoic religion, and an exposition of the Roman government's attempt to suppress Christianity during Marcus's reign); R. Heinze, *Ovids Elegische Erzählungen*; Luise Reinhardt, *Die Anakoluthe bei Platon*; R. J. Walker, *Sophocles and Sophoclean Fragments*; J. N. Figgis, *The Political Aspects of St. Augustine's "City of God"*; E. Schwartz, *Das Geschichtswerk des Thukydides*; R. S. Conway, *New Studies of a Great Inheritance* (contains papers on Cicero, Horace, Vergil). The *Historia Augusta* received some attention; in *Hermes*, lv, appeared E. Hohl, "Über den Ursprung der Historia Augusta," and J. Geffcken, "Religionsgeschichtliches in der Historia Augusta."

In the *Jahresbericht für Altertumswissenschaft*, No. 183, there was a survey of work on the Roman fable-writer Phædrus and on Roman fable-literature in general, 1909-17, by H. Draheim; in No. 184, there was a similar survey of the literature on Sallust, for 1899-1918, by A. Kurfess.

New text editions of various classical authors have appeared. Thus, in the Oxford Classical Text Series, A. C. Clark brought out a revised version of his text of certain speeches of Cicero. To the same Series, C. F. Walters and R. S. Conway contributed the second volume of their text of Livy (Books vi-x). A new text edition of Vergil, an editio maior, by G. Janell, has been brought out in the Teubner Series.

Some annotated editions of importance must be noted. A. E. Housman has brought out his commentary on the fourth book of Manilius, *Astronomica*. Note also Fr. Kraner and W. Dittenberger, edition of Caesar, *De Bello Gallico*, volumes 2 and 3, seventeenth version, by H. Meusel; J. Van Leeuwen, *Menander, Fragments*, third edition; M. Rothstein, *Sextus Propertius*, second edition; K. Müllenhoff, *Die Germania des Tacitus*, new edition by M. Roediger; and the first volume of a revision (the fifth) by J. Steup, of J. Classen's famous edition of *Thucydides*.

In connection with more general works on Greek and Latin literature, it may be noted that of W. von Christ, *Geschichte Der Griechischen Literatur*, edited by W. Schmidt and Oscar Stählin, Part 2 of edition six, First Half, appeared (this deals with the earlier portion of the post-classical period of Greek literature, from 320 B. C. to 100 A. D.). Of M. Schanz, *Geschichte der Römischen Literatur*, Volume iv, Part 2, appeared (this deals with the Latin literature of the fifth and sixth centuries A. D.). W. S. Teuffel, *Geschichte der Römischen Literatur*, reached its seventh edition.

More general works to be mentioned are J. Burnet, *Early Greek Philosophy* (third edition); Thomas Dwight Goodell, *Athenian Tragedy: A Study of the Popular Art*; T. Whittaker, *The Neo-Platonists* (second edition), with a Supplement on the Commentaries of Proclus.

In the field of linguistics, grammar, and lexicography, we mention H. Birt, *Indogermanische Grammatik: Teil II. Der Indogermanische Vokalismus*; A. Meillet, *Linguistique Historique et Linguistique Générale*. The second edition of A. Meillet, *Aperçu d'une Histoire de la Langue Grecque*, was published. Professor W. M. Lindsay, of St. Andrews University, Scotland, well known as the editor of texts of Plautus, Martial, Festus, and Nonius Marcellus, has been interesting himself and others in the glosses. See especially some remarks of his in *The Classical Review*, xxxv, 112-113. He published also, in 1921, two books in this field: *The Corpus, Epinal, Erfurt*, and *Leyden Glossaries*, and *The Corpus Glossary* (Oxford University Press, Cambridge University Press).

In the field of metre we mention W. R. Hardie, *Res Metrica* (reviewed by Paul Shorey, *Classical Philology*, xvi, and D. S. Robertson, *The Classical Review*, xxxv), and Ulrich von Wilamowitz-Moellendorf, *Griechische Verskunst*.

In the field of palaeography, a very honorable place is occupied by C. U. Clark's *Collectanea Hispanica* (see above, in the reference to the *Transactions of the Connecticut Academy of Arts and Sciences*, xxiv). Other works or articles deserving of mention are A. Adler, *Catalogue Supplémentaire des Manuscrits Grecs de la Bibliothèque Royale de Copenhague*; N. A. Bees, *Verzeichnis der Griechischen Handschriften des Peloponnesischen Klosters Mega Spilæon*, Vol. I.; J. Bell, *Greek Papyri in the British Museum. V*; G. M. Bolling, "Vulgate Homeric Papyri," in *American Journal of Philology*, xlii; R. Fawtier, "List of Additions to Latin Manuscripts in the John Rylands Library," in the *Bulletin of the John Rylands Library*, January; S. Gaselee, *The Greek Manuscripts in the Old Seraglio in Constantinople*; V. Gardthausen, *Handbuch der Wissenschaftlichen Bibliothekskunde*, 2 vols.; Julius P. Gilson, *Students' Guide to the Manuscripts in the British Museum*; B. P. Grenfell, *The Present Position of Papyrology*, in the *Bulletin of the John Rylands Library*; B. P. Grenfell, "The Value of Papyri for the Textual Criticism of Extant Greek Authors," in *Journal of the Hellenic Society*; B. P. Grenfell and A. S. Hunt, *The Oxyrhynchus Papyri, Part xiv*; F. G. Kenyon, "Greek Papyri and their Contribution to Classical Literature," in *Journal of Hellenic Studies*, xxxix (1919: the article concludes with a bibliography of the most important publications of literary papyri down to 1916); Hans Kreller, *Erbrechtliche Untersuchungen auf Gräcoägyptischen Papyruskunden*; J. Maspero, *Papyrus Grecs d'Époque Byzantine. III*; A. Ments, *Geschichte der Griechisch-Römischen Schrift bis zur Erfindung des Buchdrucks mit Beweglichen Lettern. Ein Versuch*; P. M. Meyer, *Juristische Papyri. Erklärung von Erkunden zur Einführung in die Juristische Papyruskunde, und Griechische Texte aus Ägypten. I. Papyri des Neutestamentlichen Seminars der Universität Berlin. II. Ostraka der Sammlung Deissmann*; L. Traube, *Vorlesungen und Abhandlungen. Vol. III* (this volume contains Traube's

"Kleine Schriften"); Hugh G. Evelyn White, *The Sayings of Jesus from Oxyrhynchus*, Edited with Introduction, Critical Apparatus and Commentary.

It may be noted here that of W. Dittenberger, *Sylloge Inscriptionum Graecarum*, third edition, Volume iii and part of Volume iv appeared.

Finally, we may state that Mr. Edward Lucas White, who is not only a classical scholar and teacher, but a novelist of distinction, published during the year a story entitled *Andivius Hedulo*, *Adventures of a Roman Nobleman in the Days of the Empire (Commodus)*. Mr. White had previously published two volumes of stories of classical content: *The Unwilling Vestal* and *The Song of the Sirens and other Stories* (for notices of these books, by W. B. McDaniel, see *The Classical Weekly*, xii, xiii).

PHILOLOGY, MODERN. The most striking feature of the year 1921 from the general philological point of view, is the great revival of interest in the study of language and its attendant problems. It seems that many Europeans at least have sought solace from the sufferings and disillusionments of war in the inspiration furnished by President Wilson's cherished theory of self-determination according to linguistic and racial unity. This has been a most vital and stirring problem with all of these peoples more or less from almost time immemorial. A characteristic attitude is that of Camille Jullian, the brilliant and very learned historian of Gaul, who, in his preface to Dottin's *La Langue Gauloise* which was mentioned in these pages last year, inveighs against the imperialistic Romans for having wiped out, without hardly leaving a trace, a language "qui a servi de lien et de communion aux pensées et au commerce de près de cent millions d'hommes" as a consequence of which catastrophe, "un des plus nobles chapitres de l'esprit humain nous sera éternellement caché."

Encouraged by this general tendency some scholars have been venturesome enough to return to the investigation of fundamental problems of comparative linguistics. Among these is Q. Meillet, one of the most original and versatile minds that has ever appeared in the domain of philology. In a volume of essays entitled *Linguistique Historique et Linguistique Générale* (Paris*) this comprehensive genius has laid the basic principles for the reconstitution of the methodology of general linguistics. In his opinion, all languages show common tendencies, general similarities in phonetics and grammar, determined, on the one hand, by the structure of the vocal organs and the limited number of phonetic possibilities that they offer, and, on the other, by the laws of general psychology. These tendencies are obvious in such universal changes as the weakening of intervocalic consonants, vowel-breaking, or in the normalization of paradigms through the principle of analogy. "Le changement linguistique," says M. Meillet, "est lié à des faits de civilisation et à l'état des sociétés qui emploient les langues considérées." In so far as it is a means of communication between the members of a same clan or of a same nation, language tends either to become infinitely differentiated or to fuse its divergent dialects into a common speech, according to the inclination to division or unification of the groups or peoples

* When no date is given, the work appeared in 1921.

that speak it. Thus their religious mentality, their conception of the world, their relations with their neighbors, their habits and occupations are reflected in their mode of speech. It is therefore not without reason that the modern languages assume incessantly a more abstract character. The progress of language is inseparably bound up with the progress of society.

It is thus in extending our grasp of the great problem of linguistics that we are approaching more closely an understanding of the race as well as the individual. How ever imperfect language may be as an expression of our thought it is nevertheless the sole means in our possession. It serves therefore in its limited way to reveal our mental attitude. M. Meillet is thus leading philology from the arid domain of phonetic formulæ into the very fertile, though most intricate, field of human life. While it is true that others have hitherto made investigations along these lines, he has glimpsed, like a Darwin or a Spencer, the general principles which will serve as fundamentals for future progress. In the NEW INTERNATIONAL YEAR BOOK for 1914 (p. 548) the present writer, in a paragraph devoted to the transformation of philology, called attention to the importance of these doctrines.

Another epoch-making manual is that of J. de Morgan, *L'Humain Préhistorique* (Paris) which contains an excellent panorama of general pre-history. Like that of the lamented Déchelette this work is divided into three chapters, viz. "évolution des industries," "vie de l'homme préhistorique," and "développement intellectuel et les relations des peuples entre eux." And before beginning a more special classification mention should also be made of J. Marouzeau, *La linguistique ou science du langage* (ib.) which, while distinguishing this subject from logic, metaphysics, polyglotry, philosophy, etc., fails to consider sufficiently accent, tabus, physiology, geography, history of morals, etc.; and of E. Sapir, *Language* (N. Y.) which analyzes the psychological and formal characteristics of language and its relations to thought, race, culture, art—a comprehensive and stimulating work.

GENERAL. Of interest to the student of language are N. Beckman, *Språkets Liv* (Stockholm), an introduction to linguistic science; H. Lommel, *Wie studiert man Sprachwissenschaft* (Frankfurt); W. Horn, *Sprachkörper und Sprachfunktion* (Berlin); A. Seidel, *Sprachlaut und Schrift* (Vienna), with a pompous sub-title; and H. Palmer, *Principles of Language Study* (London), a useful manual. H. Hirt issued part 2 of his important *Indogermanische Grammatik* (Heidelberg) though part 1 has not yet appeared.

In palaeography an interesting contribution is W. A. Mason, *History of the Art of Writing* (N. Y.). This subject suffered a severe loss in the death of Professor John M. Burnam of the University of Cincinnati (see NECROLOGY). Not only did this gifted scholar enjoy the honor of being in the first rank of the world's greatest in his chosen subject, but he will also be remembered as the collector of one of the largest and most complete private libraries of manuscript facsimiles in existence. Those privileged to know him will never forget his sincerity, loyalty, and extreme modesty.

We called attention last year to the widespread interest in Basque. At last the Abbé

Ithurry's *Grammaire basque: dialecte labourdin* (Bayonne, 1920) has made its appearance. The printing of this work was begun in 1895, yet it was still unfinished at the time of the death of the author a few years ago. It is by far the best of recent works of its kind and deals especially with the dialect of ancient Labourd, which was touched upon by Lucien Bonaparte in his *Verbe basque*. D. de Areitio has begun the publication of a catalogue of Basque works in the *Biblioteca de la Real Academia de la Lengua Vasca* (Bilbao, 1920).

Sanskrit. Sir G. A. Grierson has issued vol. X of the Linguistic Survey of India which contains *Specimens of Languages of the Eranian Family* (Calcutta). Among works of a general nature are F. E. Keay, *History of Hindi Literature* (N. Y.) and J. N. Farquhar, *Outline of the Religious Literature of India* (ib.). Studies of a more special nature include A. B. Keith, *Karma Mimamsa* (N. Y.) published in the *Heritage of India Series* and consisting of a study of the development and literary history of the subject; E. W. Burlingame, *Buddhist Legends* (Cambridge, Mass.) consisting of a translation from the original Pali text of the Dhammapada commentary and forming vols. 28, 29, and 30 of the Harvard Oriental Series; and S. Lévi, *La Légende de Nala et Damayanti* (Paris, 1920), another translation of this beautiful poem.

Celtic. Though not dealing with philology, H. M. Pim, *Short History of Celtic Philosophy*, (Dundalk, 1920) deserves mention here. In early Irish we have R. Thurneysen's admirable *Die Irische Heldensage und Königsage bis zum XVII Jahrhundert* (Halle) while the modern language is represented by Rev. G. O'Nolan, *Studies in Modern Irish* (Part I, Dublin, 1920). In Welsh we have A. Arnoux, *La Légende du roi Arthur at les chevaliers de la Table ronde* (Paris) and W. E. Griffiths, *Welsh Fairy Tales* (N. Y.) both works of a popular nature. Breton has been more fortunate in that it was the subject of several serious works: A. Sommerfelt, *Le Breton parlé à St.-Pol-de-Léon*, a Paris doctoral dissertation, containing phonology and morphology of this dialect; R. Grand, *Mélanges d'archéologie bretonne* (Vannes, 1ère série) seeks an answer to the question: "Y a-t-il un art breton?"; F. Vallée, *Vocabulaire français breton de Le Gonidec* (St. Brieux, 1920) a new edition; and finally J.-P. Calloc'h, *A genouz* (Paris), a collection of lays translated into French by P. Mocaër, with a bilingual preface by J. Loth.

Slavic. A most noteworthy contribution to this vast domain of research is the founding in Paris of the *Revue des Etudes Slaves* under the editorship of A. Meillet and Paul Boyer. Its purpose is, on the one hand, "permettre au lecteur occidental de suivre aisément les progrès de la slavistique," and on the other, to facilitate "le rapprochement et la collaboration de tous les slavistes de toutes disciplines, linguistes, philologues, historiens de la littérature et de l'art, archéologues, etc." Among the few indications of life in this, at present, dormant field are *Le Sloglav ou les cent chapitres* (Paris, 1920, a translation by E. Duchesne of the decisions of the ecclesiastical assembly of Moscow in 1551; and A. Mason, *L'œuvre de la guerre et de la révolution en Russie, 1914-18* (ib.). H. H. Bender, *Lithuanian Etymological Index* (Princeton) is very useful. Setälä, *La lutte des langues en Finlande* (Paris, 1920) discusses the encroachment of Slavic on

the northernmost of the three non-Indo-European oases in Europe — the other two being Hungarian and Basque.

English. An interesting popular work is N. Ault, *Life in Ancient Britain* (N. Y., 1920). The 6th livraison of K. Luick, *Historische Grammatik der englischen Sprache* (Leipzig) was the most important contribution to English philology. Passing mention may be made of H. C. Wyld's inaugural lecture *English Philology in English Universities* (Oxford). In Anglo-Saxon we have the 2d ed. of M. Förster, *Allenglisches Lesebuch für Anfänger* (Heidelberg) and Helen Buckhurst's *Anglo-Saxon Index* to W. M. Lindsay's *Corpus Glossary* (Cambridge). *The Essays and Studies by Members of the English Association* (Oxford) collected by A. C. Bradley, contains, among other studies, G. Langen felt, *Semantological Differences in the Toponymical Word-group*. A. G. Kennedy, *The Modern English Verb-Adverb Combination* (Stanford University, 1920) discusses, in a convincing manner, such compounds as "make out," "come by," "bottle up," etc. From the University of Nebraska come two works of high class: L. C. Wimberly, *Minstrelsy, Music and the Dance in the English and Scottish Popular Ballads*; and Louise Pound, *Poetic Origins and the Ballad* (N. Y.), a most heartless and annihilating attack by a very learned iconoclast on the cherished theory of our unsophisticated scholars. The fact that this fanciful explanation was accepted blandly for so many years makes us wonder why Max Müller was unable to have similar success with his equally naive Je-Hai-Ho and Ding-Dong theories of the origin of language. To toponymy the only addition seems to have been A. Mawer, *Place-Names of Northumberland and Durham* (Cambridge). While J. Sargeant, *Pronunciation of English Words derived from Latin* (Oxford) with notes by H. Bradley, is thoroughly scientific and substantial, Brander Matthews, *Englishing of French Words* and R. Bridges, *Dialectal Words in Blunden's Poems* (ib.) are popular rehashings of oft-treated themes. "American" is subjected to another searching examination in G. E. Tucker, *American English* (N. Y.), which, however, does not carry with it the flippant tone that is deemed necessary. A work of importance for the history of English versification is T. S. Omond, *English Metrists* (Oxford) which is represented as a sketch of prosodical criticism from Elizabethan times to the present. Useful bibliographies are L. Spence *Dictionary of Medieval Romance and Romance Writers* (London) and *Bibliography of English Language and Literature, 1920* (Cambridge) compiled by members of the Modern Humanities Research Association. Lexicographical works include the following: Allen's *Synonyms and Antonyms* (N. Y.), ed. by F. Sturges; E. Weekley, *Etymological Dictionary of Modern English*, (London); I. F. and W. D. Henderson, *Dictionary of Scientific Terms* (N. Y.); F. H. Vizetelly, *Words We Misspell in Business* (ib.), containing 10,000 terms; and also his *What? When? Where? What? Mend Your Speech; Punctuation and Capitalization* (ib.), in three small volumes.

Gothic. The only work worthy of note is the 14th edition of Stamm-Heyne, *Ulfilas* (Paderborn) with grammar and vocabulary by F. Vrede — a standard version of the celebrated bishop's translation of the New Testament.

Germanic. Contributions of a general nature include G. Rossima, *Die deutsche Vorgeschichte, eine hervorragende nationale Wissenschaft* (3rd ed., Leipzig), dealing with the primitive Germans; and F. Kluge, *Deutsche Sprachgeschichte* (ib.). In Old High German we have the 8th edition of W. Braune, *Althochdeutsches Lesebuch* (Halle); and in Middle High German, M. Lexer, *Mittelhochdeutsches Taschenwörterbuch* (15th ed., Leipzig); V. Michels, *Mittelhochdeutsches Elementarbuch* (4th ed., Heidelberg); and F. Zarncke, *Das Nibelungenlied* (Halle, 1920), a school edition. Of general interest to the student of the modern language are B. Delbrück, *Grundlagen der neuhochdeutschen Satzlehre* (Berlin, 1920), a textbook; A. Holz, *Die befreitende deutsche Wortkunst* (Vienna); A. Waage, *Bedeutungsentwicklung unseres Wortschatzes* (4th ed., Lehr); and L. Wolf, *Studien über die dreiconsonanz in den germanischen sprachen* (Berlin). The position occupied by the German language in the French curricula is shown in F. Bertsaux, *L'Allemand au baccalauréat et aux grandes écoles du gouvernement* (Paris). Special studies include R. Much, *Der Name Germanen* (Munich), which, in all probability, is derived from the Old Irish, *gairm, shout*; and O. Gaupp, *Zur Geschichte des Wortes "rein"* (Tübingen, 1920), a dissertation. In dialectology, besides H. Wix, *Studien zur westfäl. Dialektgeographie im Süden des Teutoburgerwaldes* (Marburg), the most important contributions were made by Swiss savants with reference to the different patois of the Republic, e. g., K. Stucki, *Schweizer-deutsch Abriss einer grammatik mit Laut- und Formenlehre* (Zürich); J. Hugentlober, *Zur schweizerdeutschen Amtssprache* (ib.); H. Gubler, *Die Liquid- und Nasal-Suffixe in der schweizerdeutschen Substantivbildung* (Basle, 1920); H. Baumgartner, *Die Laute der Mundarten des Berner Seelandes* (Bern); and J. Hallauer, *Dialekt der Berner Jura im 14. Jahrhundert* (Zürich), the last three works being dissertations. In lexicography we must note the 17th livraison of vol. XIII of J. and W. Grimm, *Deutsches Wörterbuch* (Leipzig); the 9th ed. of F. Kluge, *Etymologisches Wörterbuch der deutschen Sprache* (Berlin), of which the first edition appeared forty years ago; H. Paul, *Deutsches Wörterbuch* (3rd ed., Halle); and the 64th livraison of H. Fischer, *Schwabisches Wörterbuch* (Tübingen) edited by W. Pfeiderer.

Dutch. C. P. F. Lecoutere, *Inleiding tot de Taalkunde en tot de Geschiedenis van het Nederlandsch* (2nd ed., Brussels) contains an introduction to general linguistics and an excellent history of the Dutch language. Of a similar nature is M. Schönfeld, *Historiese grammatica van het Nederlands* (Zutphen), a very useful work. In dialectology there appeared T. Frings and J. Vandenheuvel, *Die südniederländischen Mundarten* (Marburg) containing texts.

Scandinavian. Prominent among the works in Old Norse is the 2nd ed. of *Den oldnorske og oldislandske Litterature Historie* (Copenhagen) by the indefatigable F. Jónsson. Three other works in the same category are deserving of praise: R. C. Boer, *Oudnoorsche Handboek* (Haarlem); M. Cahen, *Études sur le vocabulaire religieux du Vieux Scandinave* (Paris), treating especially 'la libation'; and the same author's *Le mot "Dieu" en Vieux-Scandinave* (ib.).

In Icelandic mention should be made of

A. Heusler, *Altisländisches Elementarbuch* (2nd ed., Heidelberg); R. Meissner, *Die Kenningar der Skalden* (Bonn), an attempt to rehabilitate the curious, but highly interesting, symbolical poetry of the Skalds; Bertha Phillpotts, *The Elder Edda and Ancient Scandinavian Drama* (N. Y.); and H. Hermannsson, *Bibliography of the Eddas* (Ithaca, 1920).

In Swedish we have the 4th part of A. Kock, *Svensk Ljudhistoria* (Lund), an excellent work; G. Cederschiöld, *Svensk Stilistik* (Stockholm); and O. Östergren, *Nusvensk Ordbok* (ib.) of which the 15th häft (*Stingaforslåde*) appeared.

The contributions to Danish include the 2nd edition of V. Dahlerup, *Det danske Sprogs Historie* (Copenhagen); J. Lollesgaard, *Syntaktiske Studier over det ældste danske, Skriftsprog* (ib.), reaching back to the year 1300; and H. Bertelsen, *Danske Grammatikere fra Midten af det 17. til midten af det 18. Aarhundrede* (part IV, ib.).

Romance. Among the works treating of the general Romance field are W. Meyer-Lübke, *Romanisches etymologisches Wörterbuch* (Heidelberg) of which the 14th Lieferung appeared; C. Santesson, *La particule 'cum' comme préposition dans les langues romanes* (Paris); G. Nicholson, *Recherches étymologiques romanes* (ib.); and E. Gamillscheg and L. Spitzer, *Beiträge zur romanischen Wortbildungslehre* (Florence). Two practical technical dictionaries deserve note: T. F. Palmer, *Dictionary of Technical Textile Terms* (Philadelphia), a small volume in English, French, and Spanish; and H. Viard, *Vocabulaire en cinq langues* (N. Y., 1920), dealing with wireless telegraphy and telephony.

French. J. Gilliéron continues his most interesting studies under the title *Pathologie et thérapeutique verbales* (III, Paris), in which he discusses such questions as "fleur dans son atrophie sémantique actuelle, l'analogue réparatrice, la phonétique, artificielle," etc. The same author's *Etude de géographie linguistique* as well as the supplement to volume I of the *Atlas linguistique de la France* (Paris), which was edited in collaboration with E. Edmont, were among the year's contributions. The 3rd edition of volume I of W. Meyer-Lübke, *Historische Grammatik der französischen Sprache* (Heidelberg) was published, while the 2nd vol. of the same work, devoted to *Wortbildungslehre* was making its first appearance. In 1920 appeared the first fascicule of the posthumous work of A. Longnon, *Les noms de lieux de la France* (Paris), a very valuable compilation containing place-names of Phœnician, Greek, Ligurian, Gaulish, and Roman origin. And now is announced the second fascicule supplying those of Saxon, Burgundian, Gothic, Frankish, Scandinavian, Breton, and Basque sources.

In Old French philology note should be taken of A. Tobler, *Altfranzösisches Wörterbuch* (Berlin, 1920), of which the 5th Lieferung (*assez-avalé*) of volume I appeared; and the 3rd edition of the same author's well-known *Vermischte Beiträge zur französischen Grammatik* (Leipzig). Other works of interest are E. Lerch, *Einführung in das Altfranzösische* (ib., 1920), containing texts and translations; and W. Foerster and E. Koschwitz, *Altfranzösisches Übungsbuch* (ib.), 6th edition by A. Hilka. The 2nd edition of volumes I and II of J. Bédier, *Légendes épiques* (Paris) was among the most important contributions of the year. When this monumental work first appeared in 1910-13,

it was predicted in these columns (cf. *NEW INTERNATIONAL YEAR BOOK*, 1910, p. 581; 1913, p. 547) that, notwithstanding the reams of hostile criticism that its revolutionary doctrines aroused, it was destined to occupy a place in the front rank of the great contributions to scholarship. Only a few months ago Professor Bédier was received into the French Academy. Other literary studies and editions of texts that deserve to be mentioned include J. Bédier, *Roland à Roncevaux* (Oxford); A. Jeanroy and A. Longfons, *Chansons satiriques et bachiques du XIII^e siècle*, (Paris); H. Suchier, *Aucassin und Nicolette* (Paderborn), 9th ed. by W. Suchier; *Gormont et Isembart* (Paris), edited by A. Bayot; and G. Feger, *Rutebeufs Kritik an den Zuständen seiner Zeit* (Basle). Syntactical studies include O. Towles, *Prepositional Phrases of Asseveration and Adjuration in Old and Middle French* (Paris, 1920), a scholarly dissertation of Johns Hopkins University; G. G. Laubscher, *Syntactical Causes of Case Reduction* (Princeton), another valuable volume of the Elliott Monographs; J. Storm, *Större fransk Syntaks* (part III, Christiania, 1920); and F. D'Ovidio, *Studi sulla più antica versificazione francese* (Rome).

In dialectology we noted above the activity of the Swiss-German scholars. On the French side their compatriots have shown the same spirit, if we may judge by W. Pierrehumbert, *Dictionnaire historique du parler neuchâtelois et suisse romand* (Neuchâtel), which is appearing in fascicules; and O. Keller, *Der genfer Dialekt dargestellt auf Grund der Mundart von Certoux* (part I, Zürich, 1920). In France proper we have F. Arnaud and G. Morin, *Le Langage de la vallée de Barcelonnette* (Paris).

With relation to the epoch of the Renaissance there appeared A. Humpers, *Etude sur la langue de Jean Lemaire de Belges* (Paris); G. Tracconaglia, *Quelques Observations sur l'origine et le développement des théories italiennes qui facilitèrent aux Français la fixation, l'enrichissement et l'embellissement de leur langue au XVI^e siècle* (Lodi); and Kathleen Lambley, *Teaching and Cultivation of the French Language in England during Tudor and Stuart Times* (Manchester, 1920).

Finally touching upon the evolution of the contemporary language we may note the 6th Lieferung of G. Krüger, *Französische Synonymik nebst Beiträgen zum Wortgebrauch* (Dresden); W. Hunger, *Argot, Soldaten-Ausdrücke und Volkstrümliche Redensarten der französischen Sprache* (Leipzig, 1920); L. Sainéan, *Le Langage parisien au XIX^e siècle* (Paris, 1920); and H. Kjellman, *Mots abrégés et tendances d'abréviation en français* (Uppsala).

The following dictionaries and phrase-books are of use: A. M. Patterson, *French-English Dictionary for Chemists* (N. Y.); A. Gordon, *French-English Medical Dictionary* (Philadelphia); and D. N. Sanson, *English into French* (N. Y.), containing 5000 English locutions rendered into French.

Italian. As little of importance was done in this language during the year, a few titles will suffice. Of somewhat general interest are E. Migliaccio, *Essai de Synonymie et quelques études comparatives entre les deux langues italienne et française* (Naples, 1920); and V. Crescini, *Appunti su l'etimologia di 'goliardo'* (Padua). In dialectology, which, it may be added, is becoming one of

the most important subjects by reason of the light that it brings to bear on the origin and growth of language, we have C. Battisti, *Testi dialettali italiani in trascrizione fonetica* (part II, Halle) dealing with central and southern Italy; F. Piazza, *Le colonie e i dialetti lombardo-siculi* (Catania); and M. G. Bartoli, *Le parlate italiane della Venezia Giulia e della Dalmazia* (Grattaferatta). An interesting introduction to the use of the dictionary is G. Finzi, *Guida teorico-pratica allo studio e all'uso del dizionario* (Turin, 1920). Serviceable lexicographies include N. Tommaseo, *Dizionario della lingua italiana compendiato ad uso delle famiglie* da G. Biagi (vol. II, ib.); G. Ravazzini, *Dizionario di architettura* (Milan); F. Salveraglio, *Nuovissimo vocabolario italiano illustrato* (new ed., ib.); W. T. Davis, *Dizionario navale italiano-inglese e inglese-italiano* (ib.) for naval engineering and architecture, merchant and military marine etc.; and G. Richieri, *Dizionario italiano-inglese e inglese-italiano* (ib.), a volume of 2000 pp. containing a supplement of technical, sporting, aviation, and other terms.

Spanish. A volume that should be in the hands of everyone interested in the study of Spanish is R. Foulché-Delbosc and L. Barreau-Dihigo, *Manuel de l'Hispanisant* (tome I, N. Y., 1920). W. A. Beardsley, *Infinitive Constructions in Old Spanish* (N. Y.) is one of the most important contributions to Spanish syntax in recent years. J. Cejador y Frauca, *Historia de la literatura castellana* (Madrid, 1920) has now reached volume XIII, extending from 1908 to the first part of 1920. Deserving of mention is also J. Rogerio Sánchez, *Historia de la lengua y literatura españolas* (3rd ed., ib.). Dr. H. Thomas, *Short-title Catalogue of Books printed in Spain and of Spanish Books printed elsewhere in Europe before 1801 now in the British Museum* (London) contains about 3000 titles, or approximately one-sixth of those extant.

Important contributions to dialectology include the 19th cuaderno of the *Diccionario gallego-castellano* (Coruña) issued by the Royal Galician Academy; J. Ribelles Comín, *Bibliografía de la lengua valenciana* (Madrid, 1920); G. Vergara Martín, *Materiales para la formación de un vocabulario de palabras usadas en Segovia y su tierra* (ib.); E. Lamao, *Apuntes críticos sobre el idioma castellano, provincialismos de Riohacha, apellidos españoles que en Colombia sólo se encuentran en la costa Atlántica* (Santa Marta, Colombia, 1920); and W. E. Retana, *Diccionario de filipinismos* (Madrid).

Useful grammars are P. Lemus y Rubio, *Compendio de Gramática española* (Murcia, 1920); and M. F. Becerra, *La nueva gramática castellana* (Chiapas) intended for the secondary schools of Mexico. Finally, mention may be made of R. Lusum, *Spanish-English and English-Spanish Commercial Dictionary* (N. Y.).

Provençal. A welcome volume is J. Anglade, *Grammaire de l'ancien provençal* (Paris) containing a very satisfactory outline of the phonology and morphology. A splendid scientific contribution to the rarely studied modern language is H. E. Ford, *Modern Provençal Phonology and Morphology* (N. Y.), studied in the language of Mistral. Other studies of note are de Gélis, *La vraie langue d'oc* (Toulouse); and C. Julian and P. Fontan, *Anthologie du félibrige provençal* (vol. I, Paris, 1920). The famous E. Levy, *Provenz. Supple-*

ment-Wörterbuch, edited by C. Appel, has now reached the 37th heft of vol. VIII (*Toler-tras-foguier*).

Rheto-Romance. The *Annales della Società reto-romantscha* celebrated its 35th year. Of importance to the scholar is R. von Planta, *Die Sprache der rätoromanischen Urkunden des 8. bis 10. Jahrhunderts* (Bonn, 1920).

Roumanian. It is indeed gratifying to note the activity of the scholars of this deserving nation in the face of untoward events to which their colleagues of larger nations have apparently been forced to succumb. A general work of great interest is N. Jorga, *Histoire des Roumains et de leur civilisation* (Paris, 1920). Comprehensive contributions to the study of the literature include S. Puscariu, *Istoria Literaturii Române* (vol. I, Sibiu, 1920), devoted to the ancient period; N. Jorga, *Istoria Literaturii Romanice* (3 vols., Bucharest, 1920); and O. Densusianu, *Literatura Română Modernă* (3 vols., ib.). A new edition of B. P. Hasdeu, *Din Etymologicum Magnum Romanica* (ib.) was welcomed, as also G. Pascu, *Beiträge zur Geschichte der rumänischen Philologie* (Leipzig, 1920). The following grammars also deserve mention: Herzog-Puscariu, *Rumänische Grammatik* (Bucharest); and G. N. Costescu, *Melodica Limbei Române* (ib.).

Phonetics. In the English branch of this subject we note the 3rd edition of D. Jones, *Phonetic Readings in English* (Heidelberg); the 2nd ed. of A. C. Dunstan, *Englische Phonetik mit Lesestücken* (Leipzig); the 2nd ed. of O. Jespersen, *Engelsk Phonetik* (Copenhagen); and T. Nicklin, *Sounds of Standard English* (Oxford). In French, Bateman and Thornton, *How to Teach French Phonetics* (Cambridge); E. Tilley, *Aid to French Pronunciation* (N. Y., 1920); L. Bascan, *Manuel pratique de prononciation et de lecture françaises* (ib.); S. W. Grace, *Primer of French Pronunciation* (London, 1920); L. Tesson, *Practical Study of French Pronunciation* (Boston, 1920); and Noël-Armfield and L. B. Brandin, *Un peu de rire français* (Cambridge), with phonetic transcription. For Italian we have J. J. Dicio, *Phonetic Italian* (Norristown, Pa.). And finally to Spanish the contributions include: H. Gavel, *Essai sur l'évolution de la prononciation du castillan depuis le XIV^e siècle* (Paris); T. Navarro Tomás, *Doctrina fonética de Juan Pablo Bonet* (1620) (Madrid, 1920); E. A. Peers, *Phonetic Spanish Reader* (N. Y., 1920); and A. Nascentes, *Um ensaio de fonética diferencial luso-castelhana* (Rio de Janeiro), a comparative Portuguese-Spanish study with emphasis on the Greek elements in the latter language.

PHILOSOPHY. See LITERATURE, ENGLISH AND AMERICAN.

PHENIX, ARIZONA, FLOOD. See FLOODS AND FLOOD PROTECTION.

PHONETICS. See PHILOLOGY, MODERN.

PHOSPHATE. See FERTILIZERS.

PHOSPHATE ROCK. According to the United States Geological Survey, the phosphate rock sold in the United States in 1920 amounted to 4,103,982 long tons, valued at \$25,079,572, an increase in quantity of 80 per cent and in value of 116 per cent over 1919.

The quantity of phosphate rock mined in any year is not the same as that sold, and the quantity in stock at the mines or drying plants at the end of each year is variable. The total quantity

PHOSPHATE ROCK SOLD IN THE UNITED STATES,
1911-20

Year	Quantity (long tons)	Value
1911.....	3,053,279	\$11,900,693
1912.....	2,973,332	11,675,774
1913.....	3,111,221	11,796,231
1914.....	2,734,043	9,608,041
1915.....	1,835,667	5,413,449
1916.....	1,982,385	5,896,993
1917.....	2,584,287	7,771,084
1918.....	2,490,760	8,214,463
1919.....	2,271,983	11,591,268
1920.....	4,103,982	25,079,572

of phosphate rock mined in 1920 was 3,975,001 long tons, an increase of 115 per cent over the output in 1919. South Carolina and Wyoming were the only States in which production decreased.

PHOSPHATE ROCK MINED IN 1919 AND 1920, BY
STATES, IN LONG TONS

State	1919	1920	Percent- age of in- crease or decrease
Florida.....	1,254,609	3,255,720	+160
South Carolina.....	49,032	42,709	- 13
Tennessee and Kentucky.....	530,973	627,677	+ 18
Western States.....	16,935	48,895	+189
	1,851,549	3,975,001	+115

The quantity of phosphate rock exported from the United States steadily declined from 1913 to 1918, falling from 1,300,000 long tons to 143,455, tons, or to about one-tenth of its former volume. In 1919, however, European demand for phosphate rock was renewed, and in 1920, for the first time since 1913, exports were more than 1,000,000 tons. The total output of phosphate rock in the Western States in 1920 was 55,609 long tons, valued at \$304,006. This was an increase of 228 per cent in quantity and of 335 per cent in value over 1919. There were four operators, three in Bear Lake County, Idaho, and one in Rich County, Utah. The Utah production was less than 5 per cent of the total. The average price per ton of rock sold seems to have varied from \$5 to \$6.50, depending on the condition and quality of the material. Rock that had been crushed and dried brought a higher price than that sold in the crude lump form. The average price for the whole district was \$5.47 a ton. The use of raw phosphate rock for direct application to the soil had grown considerably during the last few years and seemed to indicate that excellent results had been obtained in increased crops. Several companies, especially in the Florida and Tennessee phosphate fields, were handling this product.

PHOTOGRAPHY. See **AEERONAUTICS**.

PHYSICAL CHEMISTRY. See **CHEMISTRY**.

PHYSICS. The year 1921 was notable in physics for the variety and interest of new research results. The structure of the atom remained the centre of interest, the problem being attacked from various angles. Isotopes, relativity, the quantum, and the structure of the positive nucleus of the atom are receiving widespread experimental and mathematical treatment. Hydrogen atoms have been shot off from the nuclei of six other elements. The octet configuration of the atom receives additional confirmation.

Atomic and molecular radii are being measured and the distribution of the atoms in crystals is being determined. X-ray diffraction is also applied to studying the micro-crystalline structure of metals, introducing a new era in such work. The new Optical Institute of Russia is conducting a splendid programme of research. The German Scientific Association, corresponding to our American Association for the Advancement of Science, met during the year for the first time in seven years. In America physics is contributing much to the technical control of industry, and as war budgets decrease scientific research should command an increasing share of national income to which it contributes in so extraordinary a degree. Industrial research in which physics plays a dominant rôle is beginning to be appreciated, and the growth of popular scientific and technical magazines promises a nation-wide interest in physics which should bring adequate support for all research programmes.

During the year laboratory temperatures have been produced far exceeding those of the solar surface; a million volts have been produced emphasizing the basic need of insulation research; mercury arc rectifiers have been made in units as high as 500 amperes and voltages as high as 1000; and laboratory instruments and methods are being transferred to the shops and mills for, as R. S. Whipple said before the Optical Society, "The instrument of to-day is the tool of to-morrow." The use of interferometry in the production and testing of high precision shop gauges is an example in point, and on the horizon looms the "ultra-micrometer" of Wheddington and its improvement in America so that it will indicate lengths as slight as a billionth of an inch. Coblentz has greatly improved the sensitiveness of his star-heat apparatus which he expects will respond to the heat of a candle at a distance of 500 miles. The diameter of Antares (alpha Scorpiotis) was measured by interferometric methods and found to have a diameter 500 times that of our sun. The same methods are being applied to other stars so that a new method is available for astronomy, by which, for example, the orbits of spectroscopic binaries can be measured as to magnitude just as the spectrophotometer measures the component velocities and periods.

Spectrograms of Nebula N. G. C. 936 (34-hour exposure) show line-displacements toward the red which indicate that the nebula is moving away from the earth at a velocity of 800 miles per second (1300 kilometres). The distance of star cluster N. G. C. 7006 is determined by Shapley and Mayberry as 217,000 light years, the furthest cluster yet determined,—incidentally it was found that there is no sensible absorption of light in space, the color of far stars being comparable with that of the nearer stars, whereas if light were absorbed in space the far stars would be the redder.

The Einstein tower of the Potsdam Astrophysical Observatory is completed and is being used to investigate the shift in the spectrum lines toward the red in the gravitational field of the sun. Dr. Freundlich will be in charge under the general supervision of Professor Einstein. The subject of relativity is receiving much attention. Weyl generalizes Einstein's theory, giving a complex geometry in which he follows up Einstein's physical assumptions by the further assumption that his quantities determine the electromagnetic

field. He thus brings Weyl's generalisation of Riemann's geometry into relation with physical coördinates. The method is beautiful, complete, and attractive. His coördinate system does not involve measurement at the bottom but only numbering according to an ordered and consistent scheme. Relativity now covers change of gauge as well as of coördinates, that is, we must establish an expression which will make the differential equations of physics invariant both with respect to arbitrarily transformed coördinates as well as for arbitrarily varying gauges.

Ch. Maurain in summarizing our principal sources of energy, recounts the danger of exhaustion of coal deposits, and emphasizes the possible use of subatomic energy "if one could find a means of making it available." This discovery would have an importance comparable to that of fire. As yet no approach to a method of artificially releasing subatomic energy is known unless it lies in the critical frequencies at which electrons are loosened from the atomic structure regardless of how small the radiation. The breaking down of silver grains by the impact of a quantum on the photographic plate shows that we do not yet understand the relation between light waves, quanta, and the method by which photo-effects are produced. Maurain quotes Arrhenius that only $\frac{1}{8}$ of 1 per cent of the solar energy reaching the earth is stored up in vegetation, $\frac{1}{8}$ of that amount going into forests, $\frac{1}{4}$ for cultivated areas, and the remainder the scant vegetation on the steppes and deserts.

E. T. Allen finds that volcanic gases (water the most important) are traceable to igneous rocks. The inert gases are in some cases of atmospheric origin, in others of deep-seated origin. Surface combustion aids in keeping up the temperature. Water in contact with volcanic material causes secondary explosions, but the primary explosions are the result of the pressure from "magmatic" gases and not of chemical action.

Physical methods of estimating the earth's age have engaged British scientific thought during the past year. Kelvin's 30,000,000 years has long since been discarded. Rayleigh points out that if radium exists inside the earth in the same ratio as at the earth's crust a layer 20 miles deep would account for the earth's heat without assuming a primeval stock. Eddington has measured the actual change of density in Delta Cephei as 1 per cent in 29,000 years. Rayleigh uses the radioactive disintegration as basis for estimating the earth's age since the transformations of uranium ending in lead isotope, and its periods are well known. The Pre-Cambrian rocks furnish a close estimate of a billion years. Assuming the helium of the earth came from radioactive minerals the minimum age of the earth is one-third of this estimate. Professor Gregory on the basis of the growth of salinity in the sea estimates 150,000,000 years. Jeffreys on the tidal theory of the origin of the solar system, allowing for the radioactivity factor estimates two billion years since the earth's crust became solid. The contraction hypothesis is absurdly inadequate. The consensus is that the earth is about a billion years old.

Davison in a study of earthquake after-shocks finds epoch maxima near midnight, just a half day later than ordinary earthquakes which have maxima about noon. The annual maxima occur from December to March for strong earthquakes.

Charles F. Brush reports experiments confirmatory of his kinetic theory of gravitation, which assumes universal wave motions in every direction, isotropic and of such frequency that they pass through all bodies, the atoms being buffeted in all directions like particles in a fluid. The average kinetic energy of the atom or particle is permanently drawn from the ether. A spherical energy shadow, or spherical zone of diminished wave impacts, is thus cast by each particle. The depth or intensity of the shadow follows the inverse law. The shadows of two gravitating bodies interblend so that the energy density between them is less, and they are pushed together by superior wave pressure. He finds, using spheres and oscillating pendulum, a shadow effect equal to one part in 17,432. Bismuth pendulum shows a shorter period than zinc by a part in 1333. He defers conclusions from these remarkable results.

Professor Evershed calls attention to the close connection between sunspot disturbance and earth's magnetism. The magnetic disturbances recurred at 27-day intervals for seven periods during the past year, terminating November 21 with a moderate magnetic storm. Carl Stormer of Norway, by making photographs of the aurora from stations eighty kilometres apart, with exposures of one second, finds the upper limit of the aurora at about 500 kilometres (310 miles).

Extraordinary interest attaches to the problem of the transmutation of the elements which on a minute scale has been realized in Rutherford's disintegration of the atoms under the bombardment of the alpha particles from radium C. The atomic nucleus itself has now been broken apart in this manner, for nitrogen, boron, fluorine, sodium, aluminum, and phosphorus. About one in a million of the alpha particles (helium nucleus) detaches a hydrogen nucleus (high-speed hydrogen atom). A new phase appeared when Rutherford noted that no effect was obtained for "pure" elements the mass of which is $4n$ where n is a whole number. The effect is marked, however, in some elements having mass $4n + 2$ or $4n + 3$. If the building of the atoms of the $4n$ type is by means of stable helium nuclei and the $4n + 1$ a type of the helium and hydrogen nuclei, the results would have been anticipated. No particles from elements of mass exceeding 31 have been observed—and this may indicate a critical change in the nucleus at this point. Carbon, oxygen, sulphur, with mass $4n$ show no effect. It is assumed that the H nuclei are satellites of the main nucleus, hence easily set free at high speeds. Rutherford discusses a mechanism for the liberation of the H atom.

Harkins' persistent work in unifying the elements on the basis of hydrogen and helium as building units, receives striking confirmation by Rutherford's work since hydrogen is the by-product of six of the elements which on Harkins' theory contain hydrogen. Helium itself is well-known as a by-product of the continuous breaking up of the radio-active elements. It is now supposed that a helium nucleus is composed of 4 hydrogen nuclei and 2 electrons. The forces which bind the components of the nucleus are so intense that great energy is required to disrupt them. The helium nucleus is expelled when the radio-active atoms disrupt with a velocity of 10,000 miles a second, or an energy of motion 400,000,000 times greater, relatively to weight, than that of a bullet. It is

this particle and this energy which Rutherford is using to break down the structure of the central nucleus of the elemental atoms. So much for the nucleus. The electrons which build up the outer structure or satellite system of the atom are set free by impacts of critical velocities. The study of the critical voltages at which ionization results is a field thoroughly developed by Foote and Mohler and now the subject of researches by numbers of physicists.

An event of the utmost significance for physics is the work of the newly founded Russian Optical Institute. A special commission for atomic research has been appointed. For the determination of electronic orbits on the quantum theory, the membership includes physicists, mathematicians, and astronomers. D. S. Rogestvensky of the Institute has already found a striking relation between the alkali metals, the spectra of which are derived from the hydrogen spectrum, the latter being distorted more with elements of greater atomic weight. The orbits of the lithium atom electrons have been calculated accurately.

A. O. Rankine, comparing the atomic dimensions of neon, argon, krypton, and xenon with those of chlorine, bromine, and iodine, shows that the diameter of the outer electron shell of neon is practically identical with those of O and N. This strengthens the Langmuir concept. Rankine later confirmed his results which closely agreed with the atomic radius from Chapman's formula and van der Waal's law. Bragg thinks that not even the outer electrons intermingle in the encounter of gas atoms agitated by heat. He finds agreement between the dimensions deduced from kinetic gas theory and X-ray crystal measurements, that the monatomic atoms of the inert group are almost identical as to size and shape with the next diatomic elements of the periodic table. Boughall finds the size of the neon atom, 2.58×10^{-8} cm.

Dauvillier and de Broglie has attacked the very difficult problem of the distribution of electrons in the heavier atoms. Their report includes a detailed account of the L-series of uranium and suggests the sources of energy in the heavy atoms. They calculate most of the sources for tungsten and uranium.

Several confirmations of the Lewis-Langmuir theory of valence are announced. The nitrogen molecule has, on this theory, an outer cell of 8 electrons, 2 nuclei and 2 electrons being within. The nitrogen molecule, it is assumed, would behave like an elastic sphere. Rankine notes a kinetic behavior for nitrogen differing from that of oxygen and the halides (which act like a 2-celled structure). Thompson states that Rayleigh's results on the scattering of polarized light show that nitrogen and oxygen behave differently, the latter differing most from the behavior of a sphere. Again, both the rare gases and nitrogen fail to absorb negative charges whereas H, Cl, C, and O readily take negative charges. Again, the outer shell determines the mobility of electrons, and since in Ne and N the octet is complete, the electron mobility is greater than in O and Cl, where the bicellular form is broken down easily. Rankine furthermore shows that the molecules of CO₂ and N₂O act as if they had the same size and shape and also as if the electrons resembled those of 3 neon atoms with their centres in a line. The computed "target area" for such an assumed

triple-neon molecule is $.895 \times 10^{-16}$ and $.867 \times 10^{-16}$ are the values for CO₂ and N₂O, respectively. These confirm the Langmuir theory.

Eve compares Bragg's atomic diameters with the cube root of the atomic volume, finding the work of removing a valence electron from the first group of the periodic table nearly inversely proportional to the radius, the same law holding for the first four elements of the second group, the last four of which diverge. M. M. Saha agrees with Eve that the atomic radius varies inversely as the ionization potential.

Kolkmeijer devises atomic models with stationary and periodically moving electron systems, using the "world line" of the electron in a four-dimensional Minkowski world, which adds to the spatial symmetry of the system an expression of the time periodicity.

Masson proposes a system of notation for expressing any action that occurs within the nucleus, for the purpose of permitting precise mathematical expression for the constitution of the atom so that its status shall be clearly indicated. He suggests the term "baron" (from baros, meaning weight) as the name for the positive nucleus, or rather the positive electrical particle.

H. Geiger considers that the shell electrons protect the nucleus from attack by other atoms, except at high speeds. Radioactivity indicates a complex nucleus, with oscillating systems becoming unstable under certain conditions. The substance has a shorter life in proportion to the speed of the emitted alpha particle.

J. J. Thompson publishes a superb study of the structure of the molecule and chemical combinations, a review which might serve as a model for other topics of physics. Such reviews bring together the recent knowledge in a given field in a manner useful to all physicists. The correlation of new knowledge is quite as important as the discovery of new knowledge, and reviews of the status of each branch of physics would be most helpful.

Isotopes command interest and attention from many observers. G. P. Thompson has studied the isotopes by means of anode rays, obtaining photographs of the parabolas for lithium, beryllium, sodium, potassium, calcium, and strontium. He finds lithium to be a mixture of atoms of weights 6 and 7 and that calcium is an "isobar." Aston finds iodine to be a simple element of atomic weight 127, not in accord with Broek and others. For example, Kohlweiler claims that by diffusion he has obtained five different iodines. Harkins and Mullekan have separated isotopes of mercury having an atomic weight difference of .027. Aston finds two isotopes of nickel of ratio 2:1, consistent with the accepted value 58.68 for nickel.

B. Brauner of Prague regards the Harkins isotopes of chlorine as mixtures of extremely similar elements, forming one of a class of isotopes. The other class consists of the disintegration products of radioactivity, leading to the "leads" (atomic weights 206 and 208). The former class are in constant proportion and their atomic masses represented by whole numbers (oxygen = 16). These run from hydrogen to caesium. Brauner recommends that they be called "atomic masses," the old atomic weights still referring to those quantities obtained by chemical methods.

Kaptsov and Momanov have made a model

showing all the phenomena observable in the passage of X-rays through crystals. By using short electromagnetic waves (from 4 to 6 centimetres) it becomes possible to verify the theory of crystal structure, including the disposition of the atoms by the use of artificial models. Potapenko is investigating the spectra of short electromagnetic waves ranging from 25 to 50 centimetres, in organic substances. Theodorovich is conducting a similar research on similar waves 10 to 30 metres in length.

W. H. Bragg reports on the crystal structure of organic substances by X-ray analysis. In spite of their molecular complexity, it is possible to obtain results by assuming that the benzene or naphthalene ring has a definite existence, size, and shape, and that the ring is built into the molecule as a whole. His results are quantitative and open up a vast and interesting field of research directed to finding the linear dimensions of organic crystals, assuming the benzene and naphthalene to be fixed building units of the compound series. The idea tallies well with Langmuir's work on surface films and experimental work of others.

The metallurgical congress at Moscow took the most intense interest in the new work of Uspensky and Konobeievsky on the microcrystalline structure of rolled laminae of metals, using the diffraction of X-rays as the method. This opens up a distinct departure in the micro-study of metals.

Duane, Palmer, and Chi-Sun Yeh have determined the value of h , the universal constant of action, as $6.556 (= h \times 10^{27})$ with a probable error in h about $\pm .009$, using the method of the X-ray spectrum and the quantum law $Ve = h\nu$.

Sommerfeld reviewing Bohr's theory as to the quantum relations of the series lines substitutes planetary ellipses for the circular orbits, applying relativity mechanics, and working out the structure of the hydrogen atom only. The helium atom is in doubt. Mohler and Foote have studied the photoelectric effect of radiation on two electrodes entirely shielded from ions produced in the arc. The photoelectric current has almost a linear relation and change of slope at critical potentials, when plotted in terms of exciting voltage. As these increase, successive changes occur in the spectrum excited by electron impact. The highest frequency ν of each additional group of lines has the quantum relation $Ve = h\nu$. Professor Vegard concludes that light is emitted both when the positively charged atom is neutralized and when the neutral atom collides with the molecules of the gas.

In a recent experiment by Anderson at Mt. Wilson Observatory, the spectra of the explosion of fine wires from condenser discharge was studied. The intrinsic brightness produced was about a hundred times that of the solar surface, a black body temperature being attained of twenty thousand degrees Centigrade. The problem of light production is in a promising status. The success of the Sperry arc in producing 900 candle-power per square millimetre has created a new era in motion picture studio lighting. Dubois and Harvey have extracted "luciferose and luciferine," two substances supposed to be the cause of animal light. Luciferine emits no light on agitation, but luciferose bursts into a momentary brilliancy if shaken. When mixed the two substances emit continuous light, apparently requiring

moisture or oxygen. G. A. Percival has made a fluorite lamp, experimentally, which gives light at 150 degrees Centigrade, using the property of thermoluminescence. The efficiency was high since a large part of the total energy was made luminous. The knowledge that nine-tenths of the energy used in light production is wasted raises a problem worthy of the most intensive efforts in physical research.

Remarkable progress has been made in X-ray photography. Baker and Levy report a new calcium tungstate plate for the purpose, 30 times more efficient and cheaper than the usual high-speed plate. The need for such high speed is in connection with the photography of moving objects such as the lungs and heart. The tungstate fluoresces, affecting the plate by shorter exposure, the fluorescence affecting the deeper silver bromide layer.

Oliver Lodge discusses the supposed weight and ultimate fate of radiation, assuming that light unable to escape would accumulate near the boundary of a system. If liberated by an expansion or other catastrophe of the system, for example through a gradual growth of instability, it would burst forth in a blase. If light has weight in a real sense he is tempted to treat it as a gas of great velocity and low molecular weight. The density of solar radiation at the earth's distance can be measured from the pressure and equals about 10^{-28} g/cc. He asks "What becomes of all the radiation poured into space by innumerable suns through incalculable ages? Is it possible that some of it is trapped, without absorption, by reservoirs of matter lurking in the depths of space, and held until they burst into new stars?" He also asks "Does such energy become stored in rotational form, tie itself into electrons and add to the mass of the body?" The density of ordinary sunshine near the earth is such that 10 cubic millimetres of earth's sunshine, the equivalent of $1/4600$ mm³ could be checked and condensed until its density is 10^{13} and converted into an electron of mass 10^{-27} gram.

Herbert Dingle in *Science Progress* reviews the status of spectroscopy in a manner worthy of following for other fields. Saunders reviews the status of the series in the spectra of the elements, recounting the two new laws (stated by Kossel and Sommerfeld), the first that the spectrum of an ionized element (lacking 1 electron) is like that of the element in the next column to the left in Mendelejeff's table, though shifted toward higher frequencies; ionized Ca (Ca^+) gives a spectrum very like that of K as would be expected since each have but one external electron. The second law is that the spectra alternate in character in passing across Mendelejeff's table. Na and Al consist of a pair series resembling each other closely, N is probably similar. Saunders considers that this indicates that when electrons are added to the outside of an atom in passing from left to right across the table, the electrons unite into inactive pairs. The aluminum spectrum is due to a single external electron, though three are present, but apparently two are bound so closely that they emit no light. This pairing tendency of electrons tallies Langmuir's theory based on quite different evidence.

A real contribution to labor-saving methods is contributed by W. P. Davey in his new apparatus for taking X-ray diffraction patterns of 15 dif-

ferent powdered crystals at once. A direct reading scale gives the distance (in Angstrom units) between the planes in a crystal, and may be read directly from the diffraction pattern. The apparatus is valuable for research and for factory control work. For certain classes of crystals, the atomic structure may be easily found by using logarithmic plots of the diffraction patterns.

W. F. Meggers gives tables of standard determinations of the wave lengths of the inert gases helium, neon, argon, krypton, and xenon, the latter three being just published. The work of the Bureau of Standards is now the basis for correcting the wave lengths measured in air, proper correction tables having been prepared on the basis of some 1200 measurements of the index of refraction of air for wave lengths from the extreme ultra-violet through the visible spectrum and in the infra-red. For the first time spectroscopy has had the full fundamental data to make its results free from ambiguity due to the air of vacuum reductions.

Ames describes the systems of color standards defined as to hue (wave length), chroma (saturation), value (brightness), suggesting as essential 50 to 80 steps in hue, 70 to 100 steps in value, and 35 to 50 steps in chroma (13,000 cards in all) in order to express any given color. Priest suggests a method and gives precise specifications for producing radiant energy having the visible spectral distribution of a theoretically complete radiator (by Planck's formula $c_1 = 14,350$). Priest's work on the spectral distribution of energy required to evoke the gray sensation, is of first importance. He finds that the average results of his observers indicate that "white light may be represented: (1) theoretically, by the light from a Planckian radiator at a temperature of 5200° absolute; (2) practically, to a fair approximation, by average noon sunlight at Washington." Forsythe finds that experienced observers can set for color match within 3 degrees K at an illumination of 5.1 foot candles. Ives suggests a colorimetric method consisting essentially of the spectrophotometry of adjacent patches of the spectrum, the width of each patch being inversely as the hue sensibility, the number of patches depending upon the kind of color and degree of accuracy required. He suggests an instrument for using the method.

Houstoun, studying the color vision of 1000 students, finds no satisfactory definition of a homogeneous population, and finds a very good Gaussian distribution on the red-green test for men, and that normal variation plays a larger rôle than thought probable. Anderson and Haas report on illumination, and traffic accidents, find a steady increase from 1906 to 1920, that October has most cases, and that the daily accidents are a maximum between 5 and 6 p. m., and a minimum between 3 and 4 a. m. They suggest plans for distributing three or four times as much light on the road surface as the usual fixtures afford. They report that proper lighting eliminated fatal accidents on a road near Schenectady where 70 serious accidents had occurred in eleven months.

Ames and Proctor in an interesting study of the dioptries of the eye describe the important characteristics, spherical aberration, chromatic aberration, oblique astigmatism, and distortion. The same authors are making a photographic lens with which by the use of the three-color process a

substantial reproduction of the retinal picture can be obtained.

Margaret Shields finds that abnormal visibility function is not necessarily associated with color function, but that color defect modifies the visibility function. The brightness sense is probably not lowered by color defects, contrary to the Young-Helmholtz theory.

Dr. A. G. Webster has summarized his studies on sound including his instrument for measuring in absolute units the sound intensity at any point. The extreme minuteness of the forces and energies involved makes this a difficult problem. He finds that 10,000,000 cornets playing fortissimo would emit only one horsepower of sound. The speaker's voice produces pressure variations only of less than a few millionths of an atmosphere. His phonometer, however, is able to measure displacements of his glass and mica diaphragm not greater than 1/24,000 of 1 millimetre. V. Cheval assigns reasons for the audibility limits, showing from the anatomy of the human ear that less than 16 complete vibrations per second will not give a musical note and that more than 32,760 will be inaudible. The latter has a half wave length of about 26 mm. (the length of the basilar membrane). The speed of sound in the liquid of the inner ear is assumed as 1700 metres per second. Danilevsky has designed a direction indicator for sounds, such that the electrical rhythm is zero when the indicator points toward the sound. It is expected to apply the system to reading fog signals.

J. H. Coblin has devised a photochronograph for measuring very small intervals of time. A film moves at right angles to the vibration plane of the tuning fork. The source of light is intermittent, the sine wave, its amplitude, and the interval between two images give the phase at the beginning and end of each flash. The clock-time scale is accurate to 1/80,000 second and by adding a rotating mirror on an axis at right angles to the film movement, the traces are reflected and recorded on the film, giving a precision of 1/2,400,000 second. Coblin ingeniously suggests the use of this apparatus to determine the Fitzgerald-Lorentz contraction. Two tuning forks set to vibrate at right angles, mounted on a plate containing the direction of contraction, Lissajous figures are formed and Coblin estimates that if the contraction exists it should be perceptible by a phase difference within ten seconds.

On the whole it has been an interesting year in physics. No new or startling ideas stand out, but a rapid development of many fruitful lines of research characterizes current work in physics. The most striking fact of current physics is the closing in upon the problem of atomic structure and the correlation of such structure with the properties of the elements.

PHYSIOLOGICAL BOTANY. See BOTANY.

PHYSIOLOGICAL CHEMISTRY. See CHEMISTRY.

PIERS, See PORTS AND HARBORS.

PIERSON, ALDEN. See NECROLOGY.

PIKE, FREDERICK OWEN. See NECROLOGY.

PINK BOLLWORM. See COTTON.

PINTO DE ALMEIDA, ANTERO. Brazilian civil official, died at Rio de Janeiro, September 7. His last important office was that of Director-General of the Executive Committee of the Brazilian Centennial Celebration. He was born in April in 1868 and became a lawyer. In the

early years of the republic he took an active part in political affairs but later applied himself to journalism and industrial interests. He was president of the *Jornal de Brasil*, one of the chief dailies of the capital.

PIPER, OTTO. See **NECROLOGY.**

PITTSBURG, UNIVERSITY OF. An institution of the higher learning at Pittsburg, Pa.; founded in 1819 under the name of Western University of Pennsylvania, which was changed to the present name in 1908. The enrollment for the fall of 1921 was 3194 classified students and 1905 special students; and for the summer session 1396. The faculty numbered 590. The income was \$738,780. The library contained 100,000 volumes. Chancellor, John Gabbert Bowman, LL.D.

PLANT BREEDING. See **BOTANY.**

PLANT DISEASES. See **BOTANY.**

PLANT PHYSIOLOGY. See **BOTANY.**

PLATINUM. Estimates of the production of crude placer platinum in the United States in 1920 give Alaska, 27 ounces; California, 656 ounces; Oregon, 23 ounces; and Washington, 8 ounces. Refiners reported a production of 41,544 troy ounces of new platinum metals in 1920, of which 36,015 ounces were platinum, 418 ounces iridium, 409 ounces osmiridium, 4309 ounces palladium, and 393 ounces of the minor metals including rhodium and osmium. This represents a decrease of 3565 ounces, as compared with the production in 1919. There were also produced 57,710 ounces of secondary platinum metals in 1920, of which 51,255 ounces were platinum, 3355 ounces iridium, and 3100 ounces palladium. This represents a decrease of 3806 ounces, as compared with the production in 1919. The platinum metals imported for consumption in 1920 included 80,955 ounces of crude platinum and unmanufactured ingots, bars, sheets, etc., of which approximately 58,009 ounces are believed to be refined metal; 4718 ounces of iridium; 4473 ounces of osmiridium; 6944 ounces of palladium; 2675 ounces of the minor metals; and 781 ounces of manufactured platinum ware. The imports of platinum for consumption in 1920 were 32,492 ounces greater than in 1919. The consumption of platinum metals in the United States in 1920 was 141,041 ounces, of which the jewelers took 57 per cent, the electrical industry 19 per cent, the dental industry 11 per cent, the chemical industry 10 per cent, and miscellaneous uses 3 per cent. The stocks of platinum metals at the end of 1920 amounted to 67,508 ounces, which is an increase of 55 per cent, as compared with the stocks at the end of 1919. Colombia was the leading source of platinum received in the United States during 1921 and there was every indication that this production would continue to increase. Russia with its extraordinary mines and rich deposits continued to neglect its opportunities and refused to begin working. In Canada the nickel smelters were closed so that several hundred ounces of platinum and palladium from this source were not available. As stated, the United States derived more than half of its crude platinum from Colombia, but England and France also shipped considerable amounts. Japan on the other took platinum from the United States and placed an embargo on its export with the evident plan of establishing a reserve of the metal.

In the United States the stocks of platinum

at the beginning of 1921 were 46,747 ounces, nearly 75 per cent greater than in 1920. Imports for the first nine months of 1921 were 52,200 ounces, or slightly lower than in 1920. There were, however, in the jewelry and other industries decreased demands for platinum so that its price continued to decrease until the low mark \$65 per ounce was reached in July, from which there was an increase until by mid-November a maximum of \$85 was secured for small lots. The range of prices during the year is shown in the accompanying table:

AVERAGE MONTHLY PRICES OF PLATINUM
Engineering and Mining Journal (New York)

Months	1917	1918	1919	1920	1921
January.....	87.83	105.92	104.85	154.23	73.400
February.....	108.75	107.68	100.43	151.59	70.227
March.....	103.33	108 (nom.)	99.20	138.56	72.483
April.....	103.77	108 (nom.)	99.85	127.04	73.404
May.....	105.00	106.27	102.60	97.60	73.740
June.....	104.75	105.00 ¹	105.80	85.19	74.942
July.....	103.88	105.00 ¹	105.90	83.94	70.440
August.....	104.55	105.00 ¹	107.60	111.44	73.222
September.....	104.13	105.00 ¹	128.70	115.20	75.960
October.....	104.00	105.00 ¹	132.21	101.70	81.800
November.....	104.52	105.00 ¹	136.74	84.75	82.609
December.....	104.38	105.54	151.35	79.62	78.192
Year.....	102.82	105.95	114.61	110.90	75.033

¹ Fixed price.

PLATNER, JOHN WINTHROP. Educator and church historian, died at Cambridge, Mass., March 18. He was born at Lee, Mass., May 15, 1865; graduated at Yale in 1885; studied at Union Theological Seminary from 1890 to 1893; and at the University of Berlin from 1893 to 1895. He became an instructor in the Union Theological Seminary in 1895; was assistant professor of church history at Harvard from 1896 to 1901; and professor of church history at the Andover Theological Seminary after 1901, becoming president of the faculty in 1919. After 1908 he was also Andover professor of church history at Harvard. He was a contributor on his subject to the various historical and church reviews and to the first edition of the *NEW INTERNATIONAL ENCYCLOPEDIA*.

PLATNER, SAMUEL BALL. Classical scholar and university professor, died, August 20. He was born at Unionville, Conn., Dec. 4, 1863, and graduated at Yale in 1883. He entered the faculty of the Western Reserve University in 1885 and after 1892 was professor of Latin. He wrote *Topography of Ancient Rome* (1904) and edited *Greek and Roman Versification* and the letters of Pliny.

PLATOON SCHOOL ORGANIZATION. See **EDUCATION IN THE UNITED STATES.**

PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA. An organization established in 1906; has been active in helping communities throughout the United States to establish year-round municipal recreation systems. During 1921 the association sent field workers into communities desiring their services to help plan the work, and to secure municipal appropriations, published a number of pamphlets and a monthly magazine, *The Playground*, answered through correspondence and personal conferences thousands of inquiries regarding various phases of community recreation, and maintained an employment department for the service of recreation

officials and workers throughout the country. It also established a continuation service, through which cities already having recreation systems might receive help and advice in their recreation problems from workers who have had valuable experience in the recreation field. The National Physical Education Service, inaugurated in 1919, helped during 1921 to secure adequate compulsory physical education laws for a number of states and worked toward the passage of a federal physical education bill. Officers during 1921 were as follows: President, Joseph Lee; treasurer, Gustavus T. Kirby; secretary, H. S. Braucher.

POCH, RUDOLF. See NECROLOGY.

PODOLIA. Formerly a government of the Russian empire, but after the revolution comprised within the territory of the Ukrainian republic; situated to the east of Galicia, and between Volhynia and Bessarabia. Area, 16,224 square miles; population estimated, Jan. 1, 1915, 4,127,600. Capital, Kamenets-Polsk, with a population, estimated before the war at 52,000, of whom one-half were Jews.

POE, Sir EDMUND SAMUEL. British admiral, died in England early in April. He was born, Sept. 11, 1849, and entered the navy in 1862. Two years later he barely escaped from the battleship *Bombay* which was destroyed by fire off Montevideo. He reached the rank of captain in June, 1888, and rear-admiral in September, 1901, and was appointed second in command of the Home Fleet on its formation in 1903. After September, 1905, he was for three years in command of the East Indies and on the Cape of Good Hope Station, serving in that capacity with distinction and being appointed vice-admiral. He retired, Sept. 11, 1914.

POETRY. See LITERATURE, ENGLISH AND AMERICAN; also articles on French, German, and Spanish literature.

POLAND. A European republic established as a result of the war, and comprising the territory formerly divided among the three great powers Austria-Hungary, Russia, and Prussia, after the three partitions of Poland in 1772, 1793, and 1795; boundaries to be defined under the treaty with Russia and Lithuania and under the award of the League of Nations in respect to the plebiscite, in Upper Silesia. An estimate of the area at the beginning of 1921 placed it at 149,042 square miles; and in 1920 an estimate of population placed it at 24,272,349. See UPPER-SILESIA; RUSSIA; and WAR OF THE NATIONS. Capital, Warsaw, with a population of about 980,000. Other large cities with estimates of populations are: Lodz, 429,775; Lemberg, 206,113; Cracow, 176,463; Posen, 156,691. Before the war Russian Poland had an area of 43,946 square miles; and a population estimated, Jan. 1, 1915, at 12,247,600, of whom about 70 per cent were Poles and about 75 per cent Roman Catholics.

AGRICULTURE. About 85 per cent of the total area has been estimated as productive and about 50 per cent under cultivation. Agriculture is the main occupation. The chief crops are wheat, rice, barley, oats, and sugar beets. Before the war the territories now united in the Polish state, produced a surplus of food exporting especially potatoes, potato alcohol, and sugar, for the most part to Germany. Agricultural production was greatly reduced by the war, extensive areas being

devastated and the country being almost entirely deprived of artificial fertilizers and losing many of its farm animals. During the first three years under the new government there was, as a result of these conditions, a serious food shortage, which necessitated the importation of large quantities of breadstuffs. The new government requisitioned grain and fixed prices, which tended to check the restoration of agriculture. In 1919 and the first half of 1920 grain imports were largely furnished on credits from the United States government. In 1920 the acreage planted showed a considerable increase over the two preceding years, but the Bolshevik invasion at the time of the harvest reduced the output. The grain crop of 1921 according to the official estimates was considerably larger than that of 1920. The imports of breadstuffs for 1920 and 1921 made up only one-tenth of the domestic production though an important item in the trade balance. It was expected that grain production in 1921 would render importation of grain unnecessary. Food though still short in 1921 was far more abundant than during the war and observers reported a great improvement in the physical condition of the people. The number of children requiring charitable care through American relief administration decreased during the year from 1,500,000 to 700,000. Beet sugar was one of the chief industries before the war and was largely exported. In 1913-14 there were 91 sugar factories in what is now Poland; in 1920-21 there were 61.

Statistics for agricultural production were not complete, but the following figures were supplied in 1921 for the area and crops of the chief agricultural products in 1920: Wheat, area, 827,000 hectares, and 697,000 metric tons; rye, 3,303,000, and 2,085,000; barley, 841,000, and 878,000; oats, 1,645,000, and 1,870,000; potatoes, 1,671,000, and 19,138,000. In 1921 measures were being taken to put into practice the laws passed by parliament, July 16, 1920, for limiting the size of the large estates and reducing the size of holdings in the neighborhood of cities. The 1921 crop of bread grains, wheat, and rye combined, was put at 4,436,000 metric tons, as compared with 2,782,000 tons in 1920—an increase of nearly 60 per cent. The total yield for 1921 of the four principal crops (wheat, rye, barley, oats) was placed at 7,537,000 metric tons, as against 5,530,000 tons in 1920 and 6,137,000 tons in 1919.

MINERAL PRODUCTION. The chief minerals are coal, petroleum, and salt. Before the war the present Polish territories produced an annual average of about 9,000,000 tons of coal which provided for about one-half of the consumption, the rest coming mainly from Upper Silesia. The government made serious efforts to increase the coal output in 1919 and there was a moderate increase in 1920. The total amount of coal produced in Poland in 1920 was 6,658,347 tons, of which 5,114,905 tons were from the Dombrowa Basin and 1,543,442 tons from Galicia. The mines of the Dombrowa furnished pit coal to the amount of 4,873,437 tons and brown coal to the amount of 241,468 tons, while Galicia furnished 1,532,982 tons of pit coal and 10,460 tons of brown coal. In 1921 the increase was very considerable and the output in April of that year was nearly up to the monthly average of 1913. In oil production Poland reached the

maximum during 1909 but declined even before the war. In 1909 the production was 2,086,000 metric tons and in 1920, 765,000. The salt mines which are for the most part in Galicia are owned by the state which has made special efforts at exploiting them with a result that in 1920 the average monthly production was about 27,000 tons.

MANUFACTURES. The textile industry, especially cotton, is the chief manufacturing occupation and during the three years following the war there was an increase in the volume of business; they were producing in 1921 about two-thirds of the prewar output. The cotton mills, however, had been gradually shut down by the war and in 1921 were operating at about 40 per cent of their prewar capacity. A revival in the manufacture of iron and steel products was reported in 1921. Timber which is especially abundant in Galicia and the eastern part of the country, is one of the chief resources.

ECONOMIC CONDITIONS. The industries of Poland suffered severely during the war and afterwards. The chief recent obstacles have been the lack of coal, lack of railway cars, and the difficulty of getting raw materials. Some progress had been made toward overcoming these obstacles in 1920, the industries showing a considerable advance over the previous year. So far as data were available for comparison, the advance appeared to be continuing during the first half of 1921. Coal during that period showed an output of 3,627,619 metric tons, alcohol a production of 40,000,000 litres of which 30,000,000 would be exported, and cement production about 40 per cent of its prewar output. In the textile industry, production was hampered by the unfavorable exchange. In 1920 the industry was producing at the rate of about 40 per cent to 50 per cent of its prewar capacity in cotton goods and 19 per cent to 26 per cent in woolen goods. In May, 1921, production had risen to 65 per cent in cottons and a little over 40 per cent in woolens and this continued down to the latter part of July when it was checked by labor troubles and difficulties in getting raw materials. There was a marked increase in the production of salt during the first six months of 1921. As to the mining and smelting industries the following table shows the output during the first half of 1921:

MINING AND SMELTING DATA, JANUARY-JUNE, 1921

Industries	Workmen	Establishments ¹	Production in metric tons
Black coal.....	47,284	66	3,506,322
Brown coal.....	2,291	13	121,297
Crude oil.....	12,597	335	342,287
Oxocerite.....	552	4	129
Salt: ²			
Galicia.....	4,324	10	125,786
Pozmania.....	272	1	8,408
Potassium salt.....	324	1	6,000
Tin ore.....			27,800
Lead ore.....	1,657	2	300
Raw iron.....	13,000	16	47,000
Zinc (metal).....			3,500
Lead (metal).....	1,589	4	1,000

¹ Number in June, 1921.

² Figures for Congress Poland are not yet available.

³ For first four months of 1921 only; data for May and June not yet available.

⁴ Seven blast furnaces are operated in the 16 smelting plants.

In Poland there was a better adjustment of wages and living conditions to the increase of prices. Depreciation of the currency seemed to bring less hardship there than in any of the other countries. Wages rose nearly in proportion with the rise of prices; and in the leading industries of the country production was considerably above what it had been during the three preceding years. Cost of living rose during the summer at an exceptional rate after the government abandoned its policy of price control over grain and grain products. This led to strikes for increased wages and to a demand for severe measures against profiteering. There were indications of a great change in foreign trade conditions toward the close of the year. Until that time the value of the imports was many times as great as that of the exports; but during the last six months of the year the proportion was rapidly changing, and estimates indicated that instead of having to import large quantities of grain, the country would be able to export a considerable quantity from the crop of 1921. The annexation of the coal mines of Upper Silesia also exercised a favorable effect on the balance of trade.

The exchange value of the mark fell from about \$.0005 at the beginning of July to \$.00015 at the close of September; rising rapidly to a maximum of about \$.00038 early in November, it stood about \$.0003 in December. The amount of currency a little more than doubled between July 1 and December 1, standing at the latter date at 207 billions of marks. The new Finance Minister, Dr. Michalski, in October, proposed legislation increasing very greatly the existing taxes, the plan in his opinion being adequate, if adopted, to balance the budget. The Bill was still under discussion at the close of the year. During the summer, the government abandoned its control of food prices and prices rose with more than usual rapidity, the index of the cost of food for a working man's family rising from 1003 on June 30 to 1078 on September 30.

COMMERCE. In regard to the general commercial situation the United States Bureau of Foreign and Domestic Commerce supplied the following information: Approximately complete data regarding the weight of goods moving in foreign trade were published for the year 1920, but there were no figures for earlier years as a basis of comparison. During 1920 the reported imports totaled 3,530,000 metric tons and exports 620,000 tons. Over 2,600,000 tons of the imports represented coal from Germany (Upper Silesia). The next most important import was food products, chiefly grain, of which the United States supplied over 100,000 tons besides part of the more than 100,000 tons reported as imported from Dantzig. Fuel, part coal and part oil, shipped to Austria accounts for 142,000 tons of the exports. Plant raw materials, chiefly lumber, to the amount of about 85,000 tons, were sent to Germany, Dantzig, England, and Holland. Food products, mostly potatoes, weighing 107,000 tons, were sent to Germany.

FINANCE. The total expenditures for the budget of 1921 were about 209,000,000,000 marks and the receipts about 135,000,000,000 marks, thus leaving a deficit of about 74,000,000,000 marks.

RAILWAYS. The rehabilitation and equipment of the Polish railways was being undertaken in

earnest in 1921 and the Polish ministry of railways was reported to have placed orders with Polish firms for 2970 locomotives, 7800 passenger coaches, and 70,000 freight cars.

The contracts for locomotives were to run to 1932, and cars to 1922, and nearly 200 locomotives were to be delivered during the first two years. The cars were to be completed more speedily.

The various orders were distributed as follows: First Locomotive Construction Company, Chrsanow, 1200 locomotives; Locomotive Construction Company, Warsaw, 360 locomotives; H. Cegielski Company, Posen, 1410 locomotives and 4400 coaches and freight cars; Wagon Car Factory, Ostrow, 2800 coaches and 18,000 freight cars; Lipop, Rau, and Loewenstein, Warsaw, 3000 coaches and 20,000 freight cars; Boiler Manufacturing Company, Ostrowiec, 20,000 freight cars.

It was announced that the Polish government would permit the construction and operation of railway lines by private concerns, but under terms so unfavorable that they would have a very limited appeal to financial interest. Some of these conditions as given currency in the railway technical journals were as follows:

"The company must secure the permission of the government before it can make preliminary surveys and studies.

"The Minister of Railways decides upon the granting of the concession, depending upon his opinion regarding the desirability of the proposed railway and the financial and other arrangements advanced by the company. The company must assure the Minister of its ability to finance the project.

"At the end of 99 years the railway so constructed, with all its buildings, real properties, rolling stock, etc., automatically become the property of the government—*without compensation to the company.*

"The government may buy the railway at any time before the concession expires by the payment of a sum arrived at as follows: Average annual net income for the best 6 of the preceding 8 years (but not less than 4 per cent on the outstanding stock) capitalized at 5 per cent (if the concession has 20 years or more to run—otherwise the average annual net income multiplied by the years the concession has to run). The government is not limited in granting concessions to other companies for lines connecting with the one to be built.

"The Minister of Railways must approve the detailed construction plans. He will supervise the work of construction. He may order the construction of new buildings.

"The company, upon the demand of competent authority, must rebuild any bridges or highways affected by its activities and, apparently, must provide overhead or subway structures for all highways.

"The Minister may lower rates as he sees fit or allow the government to participate in profits over a certain amount.

"The government has the right-of-way for telegraph and telephone lines along the railway.

"The company will be required to transport postal parcels and employees free of charge and, when cars are provided by the postal authorities, handle and repair these cars at the company's expense.

"The company must enter into such relations as

to joint use of facilities or equipment as the Minister may require."

DEFENSE. In 1921 the Polish army was still on a war footing, but demobilisation was in progress in the spring. There were about 14,000 officers and 700,000 men of all arms. Military service is compulsory, and all able-bodied males are liable. See NAVAL PROGRESS.

HISTORY

GOVERNMENT. A Polish constitution was adopted on March 17. It combined features of the French and American constitutions. Executive power was vested in a president elected for seven years by a national assembly and in a cabinet responsible to the legislature. The president's powers were similar to those of the president of the United States, except that during war the responsibility was shifted to the minister of war, and that he did not possess the power of pardon. Legislative power was vested in a national assembly, consisting of a house and a senate. The judiciary was framed on the model of that of the United States. The constitution contained the usual guarantees in respect to life, liberty, and property, and assured religious toleration. Catholicism continued as the leading religion, and the relations between the church and the state were to be determined by an agreement with the Vatican, subject to approval by parliament. The rights of minorities were to be guaranteed by special legislation, and all citizens were to have the right to use their own language. Ministry at the beginning of the year (appointed August 21, 1920), constituted as follows: Prime Minister, Wincenty Witos; Foreign Affairs, Eustachy Prince Sapieha; Commerce and Industry, Wieslaw Przanowski; Finance, Dr. Jan Kanty Stecowski; Interior, Leopold Skulski; Communications, Zygmunt Jasinski; Posts and Telegraphs, Wladyslaw Steslowicz; Agriculture, Josef Racynski; Art, Jan Heurich; Labor, Jan Jankowski; Food, Boleslaw Grodzicki; Justice, Stanislaw Nowodworski; Public Works, Gabriel Narutowicz; War, General Gosutowski; Education, Maciej Rataj; former Prussian Province, Wladyslaw Kucharski; Health, Witold Chodzko.

RELATIONS WITH RUSSIA. The treaty of peace with Russia was signed at Riga, March 18. Its general result was to cause Russia a loss of 87,000 square miles with a population of about 7,000,000. See the article WAR OF THE NATIONS. Friction between the Russian and Polish governments continued throughout the year, and each charged the other with hostile propaganda. At the end of November a Soviet note accused the Warsaw government of complicity in the Ukrainian revolts, but these charges were denied by it, and the Polish government, November 21, complained in its turn that the Soviet government was supporting armed invasions of the Polish frontier. On November 8 the Polish government dispatched a note to Russia demanding that the terms of the treaty of Riga be carried out. Toward the close of the year laws were pending against the Communists, and, according to their provisions, every attempt against the government was to be punishable by death, and every preparation for such an attempt, by imprisonment for twenty years.

ALLIANCE WITH RUMANIA. Early in the year

the terms of a defensive and offensive alliance between Rumania and Poland were under discussion. The main purpose of it was to serve against any attack from Russia on one hand or Bulgaria on the other. It was signed at Bucharest, March 3, 1921, and ratified by the Polish Diet, July 1. By it each country agreed to support the other if it were attacked on its present eastern frontier, without provocation and to give aid in accordance with a military convention to be agreed upon, which should last five years subject to the right of either party to denounce it after two years on six months' notice. Neither party was to conclude an alliance with any other Power except upon an understanding with the other party to the alliance.

THE VILNA SETTLEMENT. The affair of Vilna has been described in the preceding YEAR BOOK under title of WAR OF THE NATIONS, where it was noted that the difficulty was referred to the League of Nations. The latter body had it under consideration after September 1, 1920. As noted in the previous account, General Zeligowsky occupied the city of Vilna in November, 1920, and set up a provisional government there. Attempts on the part of Poland and Lithuania to come to an understanding failed and the Polish general remained in spite of the Lithuanians and even against the authority of the Polish government. The Lithuanians charged that the Polish government was really responsible for the aggression, but the latter persistently denied this. The League of Nations decided upon direct negotiations and this plan being accepted, representatives of the two disputing nations met at Brussels under the president of the League, M. Paul Hymans. This attempt failed and the negotiations were broken off. In September, 1921, a settlement was finally reached by the League of Nations. According to this, General Zeligowsky was to evacuate the city and a local military force was to be created there for police purposes. On September 12, it was announced that both parties to the dispute had accepted the plan with certain reservations. The situation was complicated by the fact that the Polish general still continued to occupy the city of Vilna, and the Lithuanians refused to act on the League's request unless the Polish government should compel him to evacuate. For a moment there was a danger of a renewal of hostilities, but on November 16 the Polish assembly finally adopted the proposal of the prime minister, General Pilsudski, which provided for the resignation of General Zeligowski and the transformation of Vilna into a middle Lithuanian state. The prime minister resigned on account of the opposition to this measure, but afterwards withdrew his resignation. See WAR OF THE NATIONS.

THE UPPER SILESIAN DECISION. An account of the Upper Silesian question, the holding of the plebiscite, and the decision of the League of Nations is given in the articles, WAR OF THE NATIONS and UPPER SILESLIA. The Poles were well pleased with the decision of October 10 which was correspondingly disappointing to Germany. See also GERMANY.

RELATIONS WITH GERMANY. According to the new prime minister, M. Ponikowski (see below), it was possible now that the UPPER SILESIAN question had been settled that friendly relations should be maintained with Germany. On ac-

count of the long period of German oppression some years must pass in order to remove ill-feeling on the part of the Poles, but there was no reason why commercial relations should be injuriously affected by this. He added, "From the political point of view, Poland, being first of all bound by her alliance with France, has been guided and will always be guided in respect to Germany by a line of conduct entirely in sympathy with and adapted to that which had been followed by France."

THE NEW MINISTRY. Attempts to form a ministry under the former Austrian Minister of Railways which gave the Nationalist Democratic party the upper hand having failed, the Centre Parties united in favor of M. Ponikowski, Director of the Warsaw Polytechnic College, who had been known as an "Activist," that is to say, a supporter of the policy during the German occupation, of making common cause with the enemies of Russia. He succeeded in forming a ministry as follows: Premier, Antoni Ponikowski; Minister of Foreign Affairs, Konstanty Skirmunt; Minister of Finance, George Michalski; Minister of Transportation, Boleslaw Sikorski; Minister of Public Works, Gabryel Narutowicz; Minister of War, Casimir Sosnkowski; Minister of Commerce and Industry, Henryk Strasburger; Minister of Agriculture, Joseph Raczynski; Minister of Posts and Telegraphs, Wladislaw Steslowicz; Minister of Health, Witold Chodzko; Minister of Justice, Bronislaw Sobolewski; Minister of Provisions, Hieronim Wyczkowski; Minister of the former German Poland, Dr. Julius Trzcinski; Minister of Public Welfare, Ludwik Darowski; Minister of Internal Affairs, Stanislas Downarowicz.

OTHER EVENTS. For two years past the subject of Polish atrocities against the Jews was under discussion and a great volume of testimony on both sides had been published. The Morgenthau mission published a report definitely citing instances of massacre and other outrages against the Jews. This brought out many denials from quarters favorable to Poland. The subject continued to be violently debated during the year. See the article Jews. An agreement was signed between Poland and the free city of Danzig, October 25, providing for the free interchange of goods. It was announced on November 4 by the Polish representative at Danzig that the agreement was being successfully executed. Goods were freely circulating under a common customs régime. A treaty with Czecho-Slovakia was signed at Prague, November 7, whereby each nation guaranteed benevolent neutrality in case the other was attacked, and Poland promised not to interfere in Slovakia, and received a similar pledge from Czecho-Slovakia of non-interference in Galicia which was under Polish administration.

By the middle of December the first payment under the Riga treaty was received, amounting to 15,000,000 Polish marks. Polish refugees were arriving in December to the number of about 6000 daily and many of them were frozen to death in unheated cars, which led to the charge of criminal neglect against the Soviet government. Measures were taken for the development of trade and the improvement of transport between Poland and Soviet Russia and a special commission was formed at Warsaw having that end in view.

At the close of the year a considerable quantity of agricultural implements was being sent from Poland to Russia. Trade with the Ukraine was also reported to be active. The treaty with Czecho-Slovakia of November 7 was sent to the League of Nations about the middle of December. According to this, future disputes were to be settled by compulsory arbitration with appeal to the Court of International Justice. Improvement in the relations with Danzig were reported.

POLAR RESEARCH. The year 1921 was marked by renewed activity in Polar explorations, both in search of new lands and in the domain of science. Arctic America, the Arctic ocean, Nova Zembla, Spitsbergen, and the Antarctic were visited. The Scott memorial fund is to be used in part for the maintenance of an Institute for Polar Research, to be affiliated with the Department of Geography at Cambridge; expeditions and publications are to be recipients.

ANTARCTIC. Cope's private expedition returned in April to Montevideo for a new ship; he reports new land west of Graham Land, with no definite information. Great interest was shown regarding the renewal of Antarctic research by the successful explorer, Sir Ernest Shackleton, who planned a circumnavigation of the continent of Antarctica, beginning with the coasts of Enderby Land. He also planned to locate astronomically some uncertain sub-polar islands,—Bouvet, Heard, Lindsay, Prince Edward, etc. His ship, the *Quest*, although unusually small was fitted out with the utmost care, and was to be lighted and warmed by electricity. Seaplanes, gyro-magnetic apparatus, sounding wires, wireless telephones, and long-distance radio sets were among the scientific means to be employed; the scientific staff was said to be thoroughly competent. In December, 1921, the *Quest* was at South Georgia.

ARCTIC. Amundsen again met with misfortune. Entering the Arctic ocean at North Cape he skirted the Siberian coast and wintered near Bering Strait, 1918-19, and was obliged to refit in 1920 at Nome. Starting again his ship, the *Maud*, was disabled near Cape Serdze, Siberia, and repaired again at Nome. He planned to attempt the drift across the Arctic ocean in 1922. The *Maud* was equipped with wireless, and Amundsen added airplanes and aviators to his expedition. The safety of the *Maud* was insured by the prompt action of the United States Revenue Service, which entering the Arctic ocean found the ship disabled, and towing her a hundred miles south from the pack enabled her to reach Nome: The Norwegian Parliament voted 500,000 kronen for the continuance of Amundsen's voyage, for which he took seven years' supplies. Russian hunters report the death of Tessen and Knudsen, who left the *Maud* on the Siberian coast.

The Dane, Knud Rasmussen, was engaged in another Arctic expedition, which had in view the ethnological survey of that part of the American Polar archipelago, situated between Greenland and Hudson Bay. He left Godthaab, Greenland, September, 1921, in the *Sea King*, with a party of eight, including Eskimo hunters, taking seventy-two dogs for means of travel. The winter of 1921-22, was to be passed on Melville and Boothia peninsulas, Baffin Land, etc. The party were to take quarter at native encampments, and acquire data as

to life methods migrations, legendary history, and folk-lore. The *Sea King* was to winter meanwhile at St. Johns, Newfoundland. Later Rasmussen intended to visit the lands of Ellesmere, North Devon, South Somerset, and Melville, returning to Denmark in 1924.

McMillan's Arctic expedition covers in part the same territory as that of Rasmussen-Baffin Land. McMillan had in view, however, researches in natural history, the physics and of geography: Baffin Land is known only as to its southern parts, and he hoped to survey the entire region. Fortunately escaping serious injury in a collision at sea, after leaving Wiscasset, McMillan sailed from North Sidney for Baffin Land on July 27, 1921, in the *Bowdoin*.

Professor Høitvedt, University of Christiania, led a Norwegian expedition to Nova Zembla, where his scientific researches were most successful. The main mountain ranges were investigated as to their geological evolution. Remains of land vegetation and of fresh water fishes, belonging to the later Devonian age, were found under conditions which are thought to prove that the continental mainland of that age included Nova Zembla.

The occupation of Spitsbergen by coal-mining industries, under the sovereignty of Norway, appears to have stimulated scientific research in that archipelago. Oxford University sent, under F. C. R. Jourdain, a scientific expedition during 1921 to Spitsbergen, with special reference to zoology and other branches of natural history. Jourdain reported that animal and bird life were in a fair way to total extinction. Walrus, once found in numerous large herds, are now rarely seen on the west coast, occupied by coal miners. The colonies of eider ducks and brent geese were systematically and mercilessly raided for eggs and down.

The ultimate object of Stefansson's expedition to Wrangel Land was attributed either to the development of this uninhabited island, or to its use as a base for further exploration.

POLISH LANGUAGE. See PHILOLOGY, MODERN.

POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF. The American Academy was established nearly thirty years ago as a forum for the scientific discussion of social, civic, industrial, and economic topics. It publishes as its official organ a bi-monthly journal, known as *The Annals*, in which discussions on questions of national or international importance are presented. These volumes are sent to all members. During 1921 the following volumes were published: January, *Present-Day Immigration*; March, *International Trade Situation*; May, *Taxation and Public Expenditures*; July, *The Place of the United States in a World Organization for the Maintenance of Peace*; September, *Revival of American Business*; November, *Child Welfare*. The following officers were elected at the annual meeting: L. S. Rowe, president; Clark Kelsey, vice-president; Charles William Dabney, vice-president; David P. Barrows, vice-president; J. P. Lichtenberger, secretary; Charles J. Rhoads, treasurer. Clyde L. King is Editor of *The Annals*. Headquarters are maintained care of West Philadelphia Post Office, Philadelphia, Pa.

POLITICAL SCIENCE. See LITERATURE, ENGLISH AND AMERICAN.

POLITICAL SCIENCE, ACADEMY OF. An organization founded in New York in 1880, for the purpose of cultivating the political sciences and their application to the solution of social and political problems. It seeks to educate public opinion by meetings and publications. The semiannual meeting of 1921 was held May 23 at the Hotel Astor, New York. It took the form of a national conference on "National Expenditures and Public Economy." The President of the United States was a guest of honor at this meeting and many other distinguished men, including several members of the President's Cabinet, spoke on matters pertaining to the general topic. The forty-first annual meeting was held on November 4-5. "Constructive Experiments in Industrial Cooperation Between Employers and Employees" was the subject of discussion. The first session was held jointly with the Industrial Relations Association of America. Leaders of several large industrial concerns spoke on different phases of the subject. The attendance at each of the meetings was over 1400 and the report of the May meeting is published in Volume 9, No. 3, of *Proceedings*, and the November meeting in Volume 9, No. 4. Between five and six thousand copies of each report have been distributed. In addition to the *Proceedings* of its meetings, the Academy publishes the *Political Science Quarterly* and the *Annual Record of Political Events*. The membership of the Academy in 1921 was 4811. The Board of Trustees was composed of Samuel McCune Lindsay, President; Albert Shaw and Paul M. Warburg, Vice-Presidents; Parker Thomas Moon, Secretary; and George A. Plimpton, Treasurer.

POLITICS, INSTITUTE OF. A movement founded at Williams College, Williamstown, Mass., for the purpose of advancing the study of politics and of promoting a better understanding of international problems and relations. It offers opportunities to scholars and those engaged in the direction of affairs of state to devote a few weeks each summer to an intensive study of the problems with which they are dealing during the rest of the year, to exchange views, to hear those whose books they have read or whose contributions to the chosen subject are known to them through public utterances, in a word, to enjoy personal association with the leaders of thought.

On May 1, 1913, the Board of Trustees of Williams College approved the inauguration of the Institute, the Board of Advisors was chosen in September, 1919, but for various reasons the inaugural session was postponed until the summer of 1921. Membership in the Institute is limited to members of the faculties of colleges and universities and to those to whom, by reason of special training and experience in the field of politics, invitations are extended. Through the generosity of Mr. Bernard M. Baruch, funds were furnished for the expense of the Institute for three years. The activities of the Institute are of two general kinds: lectures by scholars and statesmen from abroad, and round-table conferences conducted by professors of leading educational institutions.

The Institute convened in Williamstown in 1921, July 29 to August 27. The subject chosen was that of International Relations, which was treated in its historical, political, legal, commer-

cial, and institutional phases, including a discussion of the causes of wars and the means of averting them. The list of topics chosen for the lecture courses and the lectures were as follows: "International Relations of the Old World States," by Viscount James Bryce; "Russian Foreign Relations during the last Half Century," by Baron Sergious S. Korff, Russia; "The Place of Hungary in European History," by Count Paul Teleki, Hungary; "Near Eastern Affairs and Conditions," by Stephen Panaretoff, Bulgaria; "Modern Italy, its intellectual, Cultural, and Financial Aspects," Tomasso Tittioni, Italy; "The Economic Factor in International Relations," by Prof. A. Viallate, France. The Round-table Conference subjects related to the general subject of the session and were led by prominent statesmen and college professors.

The second session of the Institute is to be held July 27 to August 26, 1922, and the general topic chosen is International Relations with special emphasis upon the problems of Central and Eastern Europe, the Far East and Latin-America. A number of eminent statesmen and scholars have been invited to deliver courses of lectures.

The administrative officers of the Institute are: Harry A. Garfield, Chairman; Walter Wallace McLaren, Executive Secretary; and Willard E. Hoyt, Treasurer, all of Williams College. The Board of Advisors includes distinguished representatives of many large universities.

POLO. The United States regained possession of the International Cup lost in 1914 by defeating Great Britain in two straight matches at Hurlingham, England. The scores were eleven to four and ten to six. The victorious team comprised Louis E. Stoddard, Thomas Hitchcock, Jr., J. Watson Webb, and Devereux Milburn, while the losing four were Major F. W. Barrett, Lieut.-Col. H. A. Tomkinson, Major Lockett, and Lord Wodehouse. The ease with which the U. S. players triumphed afforded considerable surprise to many followers of the game who figured that the American ponies would not be sufficiently well acclimated to be at their best. It was the sterling condition of their mounts, however, that smoothed the way for the visiting team.

The U. S. National open championship was won by the Great Neck players who defeated the Rockaway team in the final round by a score of eight to six. The national senior title went to Rockaway, and the Meadow Brook Foxhunters carried off the junior laurels.

PONCHIELLI, TERESA BRAMBILLA. Widow of the famous composer, Amilcare Ponchielli, died at Vercelli, in July. She was born at Cassano Val d'Adda, in 1845. Already famous at the time of her marriage (1872), she won her greatest triumphs as interpreter of her husband's works. After his death, in 1886, she retired from the stage and devoted herself to teaching.

PONTOON BRIDGES. See BRIDGES.

POOL. See BILLIARDS.

PORK. See LIVE STOCK.

PORRITT, EDWARD. British-American writer, committed suicide, October 8, by jumping overboard from the steamer *Baltic* after leaving Liverpool. He was born in England, Dec. 8, 1860, began newspaper work at an early age on a provincial journal, but later was on the staffs of Liverpool and London papers. He came to the United States and lived for a time at Farmington,

Conn., contributing largely to American periodicals and serving as correspondent for the *London Times* and *Manchester Guardian*. He visited South Africa in 1902 and wrote articles on trade conditions there. He was lecturer at Johns Hopkins University and at the University of California. His wife was widely known as a suffragist leader. He wrote: *The Englishman at Home* (1894); *Breakup of English Party System* (1895); *The Unreformed House of Commons* (2 vols., with Mrs. Annie G. Porritt, 1903); *Sixty Years of Protection in Canada, 1848-1906* (1907); *Revolt against the New Feudalism in Canada* (1911); *Barriers against Democracy in the British Electoral System* (1911); *The Evolution of the Dominion of Canada; its Government and its Politics* (1918).

PORTER, HENRY KIRKE. Former Congressman from Pennsylvania, died, April 11. He was born at Concord, N. H., Nov. 24, 1840; educated at Brown University, Newton Theological Institution, and Rochester Theological Seminary; enlisted in 1862, in the Massachusetts volunteers in the Civil War, and was mustered out in July, 1863. After the war he went into the manufacture of light locomotives, establishing an important company of which he became president. He was a member of Congress from 1903 to 1905, and an officer of many important financial and other institutions in the city of Pittsburg, Pa.

PORTER, HORACE. Diplomat, soldier, and railroad president, died, May 29. At the time of his death he was the last survivor of General Grant's staff. He was born at Huntingdon, Pa., April 15, 1837; educated at the Lawrence Scientific School, Harvard; and graduated at the United States Military Academy in 1860. He entered the Civil War as a second-lieutenant, and became captain, March 3, 1863; and lieutenant-colonel and aid on the staff of General Grant, April 4, 1864. He distinguished himself at the siege of Pulaaski, in the battle of Chickamauga, the battle of the Wilderness, and at Newmarket Heights, Va. On March 13, 1865, he was breveted brigadier-general for gallant services in the field. He was assistant-secretary of war in 1860, and executive secretary to President Grant, 1869-73. In the latter year he was made vice-president of the Pullman Palace Car company, and was afterwards president of the New York, West Shore, and Buffalo railroad and of the St. Louis and Santa Fé. From 1897 to 1905 he was ambassador to France. As an orator of unusual merit he was in demand on all great public occasions and was prominent during many years at a large number of public ceremonies. He secured by private subscription the necessary funds for the building of Grant's Tomb in New York City, and was the orator at its dedication, April 27, 1897. Through his efforts and at his own personal expense he recovered the body of Paul Jones in Paris, April 7, 1905, and officiated at the interment at Annapolis, April 23, 1906. Among his writings are: *West Point Life* (1866); *Campaigning with Grant* (1897); and articles in *Battles and Leaders of the Civil War* (1887).

PORTLAND CEMENT. The production of Portland cement in 1920 was 100,023,245 barrels, exceeding that in 1917, the next highest year in production, by 7,209,043 barrels. This amount was an increase of 24 per cent over the

production in 1919—80,777,935 barrels. The stocks at the mills increased from 5,256,900 barrels at the end of 1919 to 8,941,046 barrels at the end of 1920.

The shipments in 1920 amounted to 96,311,719 barrels, valued at \$194,439,025, as compared with 85,612,899 barrels, valued at \$146,734,844, in 1919, an increase in quantity of 13 per cent and in value of 33 per cent. Of the 27 States in which Portland cement was manufactured in 1920, 21 showed an increase in shipments and 6 showed a decrease as compared with 1919, and 25 showed an increase in production and 2 showed a decrease. There were increases in production in all the commercial districts and increases in shipments in all except three as compared with 1919, and yet the estimated Portland-cement manufacturing capacity utilized during the year was only about 66 per cent.

In 1920 the average factory price per barrel for Portland cement in bulk was higher in all the districts and ranged from \$1.83 in Indiana and in the Illinois and western Indiana district to \$2.46 in Michigan; in 1919 it ranged from \$1.62 in Illinois and the Illinois and western Indiana district to \$2.08, the average in Oregon and Washington. The average factory price per barrel for the whole country was \$2.02 in 1920, as compared with \$1.71 in 1919, an increase of 31 cents per barrel, or 18 per cent. This is the highest average price on record since 1892. The lowest average price recorded was \$0.813 in 1909 and 1912.

The combined production of natural and puzzolan cements in 1920 was 767,481 barrels, valued at \$1,150,890, as compared with 528,589 barrels, valued at \$583,554, in 1919. In 1920, 8 plants reported production of natural cement and 1 plant made puzzolan cement.

The exports of hydraulic cement from the United States in 1920 were 2,985,807 barrels, valued at \$10,045,369, or \$3.36 per barrel, as compared with 2,463,573 barrels, valued at \$7,513,389, or \$3.05 per barrel in 1919, showing an increase in quantity of more than 21 per cent and in value of nearly 34 per cent. The exports were sent principally to South America, the West Indies, Central America, and Mexico. The imports for consumption in 1920 were 524,604 barrels of 376 pounds, valued at \$1,254,729, or \$2.39 per barrel, as compared with 9026 barrels, valued at \$52,636, or \$5.83 per barrel in 1919. This great increase in imports, which were largely from Canada, is noteworthy.

PORTO RICO. AREA AND POPULATION. The area of the island is placed at 3435 square miles. The population in 1920 was 1,299,809, an increase of 181,797 in less than 10 years and an increase of 346,616 since the census was taken by the American administration in 1899. At the last census under the Spanish government in 1887 the population was given at 798,565 and it increased during the last 22 years of Spanish government by 221,595, or 30 per cent. Under the 21 years of American government it increased 346,616 or 36 per cent. As a result of this increase the density of the population has become enormous, that is to say, 378.4 per square mile.

EDUCATION. The following statistics of education were supplied by the Bureau of Insular Affairs:

	1920	1921
Total enrollment.....	184,991	193,269
Distributed by schools:		
Rural.....	115,077	119,947
Elementary urban.....	59,174	62,126
Secondary.....	3,882	4,364
Collegiate Depts. U. of P. R.....	644	565
Private school enrollment.....	5,823	6,818
School population, 5 to 18 years.....	452,446	452,446
Enrollment in public schools to school population.....	40.7%	42.7
Teachers, number of.....	3,288	3,354
All native Porto Rican teachers except.....	153	158
Buildings.....	1,903	1,911
Buildings government owned.....	569	596

¹ Basis 1920 population.

² Basis 1920 school population.

COMMERCE. Shipments of merchandise to and from the United States constitutes more than 90 per cent of the commerce of Porto Rico, the trade of the United States with Porto Rico exceeding that with any Latin-American country, except Argentina, Brazil, and Cuba. The chief exports are sugar, tobacco, cigars, coffee, and fruits. The chief imports are rice, flour, cotton manufactures, manufactures of iron and steel, and fertilizers. In 1920-21 imports were valued at \$105,479,703, a slight increase over the previous year, and exports at \$112,278,575, a decrease of approximately 25 per cent as compared with 1920, due to the general falling off in prices. Breadstuffs of which almost all came from the United States amounted to \$13,912,595, and the importation of cotton goods was \$15,127,920. The sugar shipments to the United States of 409,022 short tons were valued at \$71,367,290 and constituted practically the entire sugar output. Exports of unmanufactured tobacco amounted to 14,667,932 lbs. valued at \$13,568,249. The development of external trade during 21 years, including the fiscal year 1921 was as follows: Exports from Porto Rico to the United States, \$103,388,227; to foreign countries, \$8,890,348; total, \$112,278,575. Imports to Porto Rico from the United States, \$97,074,399; from foreign countries, \$8,405,304; total, \$105,479,703.

MANUFACTURES. The accompanying table issued by the U. S. Bureau of the Census gives a comparative summary of the census of manufactures in 1919 with corresponding figures for 1909 for purposes of comparison:

	Manufacturing Industries		Per cent of increase ¹ 1909-19
	1919	1909	
Number of establishments.....	619	939	-34.1
Persons engaged.....	18,454	18,122	1.8
Proprietors and firm members.....	787	1,478	-46.8
Salaried employees.....	1,682	1,062	58.4
Wage earners (average number).....	15,985	15,582	2.6
Primary horsepower.....	67,226	34,005	97.7
Capital.....	\$84,151,310	\$25,544,385	229.4
Salaries and wages.....	9,104,465	4,898,228	85.9
Salaries.....	2,338,861	1,259,032	85.8
Wages.....	6,765,604	3,639,196	85.9
Paid for contract work.....	157,784	21,326	639.9
Rent and taxes.....	2,194,740	2,941,292	-25.4
Cost of materials.....	59,827,274	21,479,292	178.5
Value of products.....	85,506,834	36,749,742	132.7
Value added by manufacture.....	25,679,560	15,270,450	68.2

¹ A minus sign (—) denotes decrease.

² Value of products less cost of materials.

The two leading manufacturing cities, San Juan and Ponce, showed considerable increases in the number of females employed in 1919 over

1909, while the class "under 16 years of age" was reduced from 135 to 3 in San Juan and from 88 to 3 in Ponce during the decade.

HEALTH AND SANITATION. The campaign against tuberculosis, malaria, and uncinariasis, the three diseases which are the cause of the high death rate registered in Porto Rico, was continued by the health authorities with the effective co-operation of the Rockefeller Foundation. The bubonic plague which made its appearance in San Juan on February 17, was the only transmissible disease which assumed epidemic character during the year. The epidemic, proclaimed on February 21, was quickly got under control through prompt action by the health authorities, but 25 cases being reported up to June 30. Infant mortality was reported at 42.25 per cent of the total mortality. The vital statistics showed a death rate of 22.33 per thousand for the fiscal year ending June 30, 1921.

FINANCE. The income of the insular treasury, estimated for the fiscal year 1921-22, was \$10,230,000, and the total assets for the year including cash on hand and deferred revenues amounted to \$11,856,335.81, with total liabilities of \$11,783,409.57, leaving an estimated cash balance, June 30, 1922, of \$72,926.24. The total bonded indebtedness was increased during the year by the sale of various bonds, including an issue of \$1,000,000 public improvement bonds of 1920, making a total bonded indebtedness at the close of the fiscal year of \$12,146,000. The limit of indebtedness was \$28,641,551.60, having been raised to 10 per cent on the basis of assessed valuation in 1920-21, according to amendment to the organic act.

ECONOMIC CONDITIONS. The financial troubles which prevailed elsewhere throughout the world were particularly acute in Porto Rico. Its principal agricultural product, sugar, dropped in price from twenty-three to about four cents per pound, and in the closing months of the year fluctuated between four and five cents. The price of other products also fell off, resulting in a greater strain upon finances than had been the case in most other places. The readjustment of wages necessarily brought about by the drop in price of the products of the island was carried on in such a way that there was not great complaint on that

account. The only important strikes during the year involved the question of open shop and reduced production. These had not been completely

settled at the end of the year, but the industries were able to continue owing to the fact that many of the laborers had refused to take part in the strikes.

LEGISLATION. The tenth legislature of Porto Rico convened for its first biennial session February 14, and adjourned, June 28, 1921, after the passage of 120 bills and 53 joint resolutions, of which 91 bills and 49 joint resolutions became laws of the islands as follows: 88 bills and 49 joint resolutions were duly approved by either the Governor or the Acting-Governor, and 3 bills became laws without the approval and signature of the Governor, as they were not returned to the legislature, the latter being still in session, within the term of ten days provided for in Section 34 of the Organic Act; 29 bills, and 3 joint resolutions did not become laws because they were not signed by the Acting-Governor within thirty days after receipt by him as prescribed also in Section 34 of the Organic Act, the legislature by adjournment having prevented their return. One joint resolution was returned by the Governor with his objections to the Senate, where it originated, and was never submitted again in an amended form to the Governor's approval.

The Congress of the United States amended, February 27, the Federal Farm Loan Act of July 17, 1916, extending its provisions to Porto Rico. Congress also amended, February 3, sections of the act of March 2, 1917, providing a civil government for Porto Rico, to read as follows:

"That no public money or property shall ever be appropriated, applied, donated, used, directly or indirectly, for the use, benefit, or support of any sect, church, denomination, sectarian institution, or association, or system of religion, or for the use, benefit, or support of any priest, preacher, minister, or other religious teacher or dignitary as such. Contracting of polygamous or plural marriages hereafter is prohibited.

"That no export duties shall be levied or collected on exports from Porto Rico, but taxes and assessments on property, internal revenue, and license fees, and royalties for franchises, privileges, and concessions may be imposed for the purposes of the insular and municipal governments, respectively, as may be provided and defined by the Legislature of Porto Rico; and, when necessary to anticipate taxes and revenues, bonds and other obligations may be issued by Porto Rico or any municipal government therein as may be provided by law, and to protect the public credit: *Provided, however,* That no public indebtedness of Porto Rico or of any subdivision or municipality thereof shall be authorized or allowed in excess of 10 per centum of the aggregate tax valuation of its property, and all bonds issued by the government of Porto Rico, or by its authority, shall be exempt from taxation by the Government of the United States or by the government of Porto Rico or of any political or municipal subdivision thereof, or by any State, or by any county, municipality, or other municipal subdivision of any State or Territory of the United States, or by the District of Columbia. In computing the indebtedness of the people of Porto Rico, bonds issued by the people of Porto Rico secured by an equivalent amount of bonds of municipal corporations or school boards of Porto Rico shall not be counted."

OFFICERS. Governor, E. Mont Reilly; Treasurer, Jose E. Benedicto; Auditor, W. L. Kessinger; Attorney-General, Salvadoro Mestre; Commissioner of Education, Juan B. Huyke; Commissioner of Interior, John A. Wilson; Commissioner of Agriculture and Labor, Carlos Toro; Commissioner of Health, W. F. Lippitt.

SITUATION AT THE CLOSE OF THE YEAR. The majority of both the lower and upper house in Porto Rico petitioned President Harding for the removal of Gov. Reilly, but the President took no action upon it and instructed the governor to return to his duties, December 16. Answers to the charge that the governor had appointed an unusual

number of Americans to positions on the Island were offered at the end of the year. According to President Harding, 5911 natives and 49 continentals were employed in the Porto Rican administration on July 1 when Mr. Reilly became governor. Changes from that date to the close of the year numbered only six and in four of these changes continentals had been replaced by Porto Ricans. In fact, the number of Americans in the service had been reduced from 49 to 45. The Speaker of the Porto Rican House of Representatives, in an address at Madrid, Spain, December 20, complained that Spain and Latin-America had been ignored at the Washington Conference and recommended the founding of a Spain League of Nations. The American administration appointed Associate Justice Emilio del Toro, Chief Justice of the Supreme Court of Porto Rico, December 22.

HISTORY

THE GOVERNOR'S DIFFICULTIES. The most notable feature of the year's record was the campaign against the American governor, Mr. Reilly, carried on among the people and in the press and resulting in the sending of a delegation to Washington to ask for his removal. This movement proceeded from the nationalist party which was accused by the supporters of Governor Reilly at aiming at secession from the United States. This party was in the majority, and its head was Antonio R. Barcelo, president of the Porto Rican senate. The supporters of Governor Reilly declared that its influence over the island politics was injurious and that its leader was endeavoring to make himself a dictator. On the other hand, the Unionists, as they were called, maintained that the party was a patriotic league working to the end that the people should show their capacity for self-government. It had the support of the main body of the population as had been indicated by repeated victories at the polls. As summarized from press accounts the situation was as follows: When the governor returned for a visit to the United States it was found that the ship was on fire and it was reported that this had resulted from an attempt on the life of the governor by some one who had placed a bomb in the vessel when it left San Juan. He appeared to be convinced of sedition on the island and he attributed it to the activities of the Unionists. At the beginning of his term he declared that he would not bestow any offices on advocates of independence and that he intended to make the English language the language of the schools. He was especially criticised for his rebuke of the president of the Porto Rican senate, Señor Antonio Barcelo, to whom he said in a letter of August 17 a propos of Señor Barcelo's recommendation of certain persons for local offices, that he wanted him fully to understand that the governor would never appoint any man to office who was an advocate of independence but that he would be glad to have his recommendations after he had publicly denounced independence and broken loose from some of his "pernicious and un-American associates." The rank and file of the Unionist party were irritated and made hostile demonstrations in the streets. Mr. Barcelo resigned from his leadership of the party but was obliged to resume it on account of the insistence of his supporters. Another step of the governor's

was to request the resignation of a Unionist member on the commission of a workmen's indemnity on the ground that he believed in Porto Rican independence. The Unionists sent three other names to the governor for nomination. On this occasion the governor declared his intention to "clean house" and not to appoint any one to office who believed in independence. After this the Unionist party took a more aggressive attitude and its programme laid more emphasis on the independence of the island. A convention of the party was held and it was decided to send a delegation to Washington for the purpose of causing the governor to be restrained or removed. Meanwhile the governor caused the resignation of the Secretary of Agriculture and Labor, the Secretary of Public Health, and the Secretary of Interior and replaced them with Republicans. But their appointment was subject to the approval of the Senate which was not to meet till February, 1922. The governor during the interval endeavored to secure from the United States Congress a change in the organic act which would permit the President to decide in case of dispute between the Porto Rican executive and the Senate. That was the situation at the close of the year. The efforts of Governor Reilly had tended to bring into prominence the Republican party of the island and his association with a representative of the Socialist party had indicated overtures to that party as well. From a certain point of view his attitude was criticised in Porto Rico as showing friendship for the more radical element. As to his appointments he had distributed the offices among all three political parties though making sure that the Unionist appointees were not those who favored independence. He made several important appointments from among the Socialists and he pardoned several of the Socialists who had been imprisoned for disorders during strikes or elections. The delegation to the United States government to demand the governor's removal arrived in November. The members were representatives of the Unionist party. In interviews with the press they accused the governor of complete incapacity and ignorance in regard to the administration of the island and blamed him for a campaign of slander against the natives. The question of language in the schools was under discussion during the year. The American governor recommended that English and Spanish both should be taught on the same footing in the schools, and that other languages should have a secondary place.

POLITICAL PARTIES. The party situation on the governor's arrival in the island has been summed up as follows: There were three political parties of which the largest was the Unionist. This included the most prominent and wealthy of the citizens and its programme was self-government for the present and independence as an ultimate aim. In November, 1920, it had polled 120,000 votes. Next in numerical importance was the Republican party which had polled 61,000 votes and whose declared aim was the Americanization of the island and its incorporation as an American State. Finally there was the so-called Socialist party which, however, was rather of the nature of a progressive labor party, aiming at public ownership of certain public utilities, more radical labor laws, an increase in the number of schools, high income tax, etc. This had polled in

November, 1920, 59,000 votes. The new governor saw in the Unionist party a menace to the American government. He believed that its members hated the Americans and were disloyal to the government; in short that they were directly moving toward complete independence of American control. According to others, however, the Unionist party was not in reality seeking independence as an immediate end but was using the term as a rallying cry to the masses and had in mind only ultimate independence at some distant and unspecified date; in other words, that it was an appeal to the sentimental aspirations of the people while their real interests were vested in the present situation for they profited from the tariff system and belonged to the class generally that benefited from American control.

PORTS AND HARBORS. In 1921 there was a serious consideration of the development of ports and harbors though actual construction was hindered by the limited funds available. At the Port of New York, for example, there was much discussion over the preparation of plans and projects. River and Harbor bills restricted port-work to necessities or the continuation of what was under way, while in Europe no great undertakings were being discussed although various projects were under consideration for future development.

NEW YORK PORT DEVELOPMENT. There was much active discussion of the development of the Port of New York during 1921, in which there was considerable difference of opinion. In these differences, politics and policies figured as well as engineering opinion, the last being far from united in approving the various suggestions or in its general appreciation of the fundamental and broad questions involved. There had been established by coöperative action of the States of New York and New Jersey, a Port Authority which aimed at the development of the port facilities about New York Bay including both New York and New Jersey, in a harmonious scheme to serve the various cities of the metropolitan districts. On the other hand, this general scheme was not approved by the municipal government of New York City on the score that it would develop New Jersey and New Jersey cities at the expense of New York and was a usurpation of the local authority. On both sides engineering and traffic studies were made, for it was realized that the great problem was not at the shores of the harbor but to transport too from the shipping the goods of commerce. In other words, the insular position of New York City and the many moors and bays which went to make up so fine a harbor acted to cut off the city from access especially for its freight and foodstuffs. The problem was a large one in which there were proposed tunnels, bridges, belt railways, classification facilities, relocation of railways, building new lines, etc., and furthermore it was realized that there was a pressing need of immediate facilities. Accordingly a system of belt lines, spurs, and marginal railways were recommended, and to supply Manhattan an underground "automatic-electric" freight subway loop system which would bring freight to distribution centres in Manhattan and elsewhere. This plan was put during the year and was generally discussed.

On Dec. 7, 1921, there was held a conference of the so-called advisory council, made up of representatives of the various interests in the

Port of New York which was provided for, and E. H. Outerbridge, chairman, Port of New York Authority, submitted what he called a preliminary report of a comprehensive plan for the development of the Port of New York.

The plan presented in the conference reemphasizes the fact that the problem of the Port of New York was a railway terminal problem and to the solution of that problem it suggested a number of belt lines divided into the inner or water-front group, the middle group, and the outer group. It also again made clear that the west water front of Manhattan Island must be cleared of terminals and made free for ocean shipping, that the opposite or Jersey shore should be developed for pierhead rail lines, and that the terminal break-up stations and classification yards must be back of the Palisades on the Jersey shore and back from the Hudson water front on Manhattan Island, with the connecting tunnel and the automatic-electric railway which had been emphasized in an earlier report. This report also called attention to the development of the ferries for motor-truck transportation to inland union terminals.

As distinct from the plans of the Port Authority the Board of Estimate and Apportionment of the City of New York submitted during the year a preliminary report on port and harbor development where the main feature was the construction of a tunnel or tunnels to connect Staten Island with Brooklyn. The general plan in addition involved a system of belt lines, industrial tracks and other facilities necessary to create a greater unification of the present steam railroad and electric traction lines leading in and out of New York City. This plan also involved an outer belt line, somewhat similar to the outer belt line suggested in the report of the New York-New Jersey Commission, intersecting all the New Jersey roads and running from Haworth, N. J., on the north, via Paterson, N. J., the Passaic river, Short Hills-Summit, Scotch Plains, and Metuchen to Perth Amboy on the south. Crossing Arthur Kill on a high level viaduct, the line would bisect Staten Island from south to north for its entire length and connects with the proposed tunnel under the Narrows. The plan included connections on the Staten Island with the existing Staten Island Rapid Transit Railway for access to the new Stapleton piers, and for purposes of passenger business.

Passing under the Narrows the line would enter into Bay Ridge, Brooklyn, and connect with the Long Island Railroad, over which access can be had to the Jamaica Bay development, to points in Long Island, the Bronx, and New England, and to a proposed industrial railway along the Brooklyn waterfront. Classification yards were proposed in New Jersey and also on Staten Island. It was also proposed to connect the New York Central and the New York, New Haven & Hartford by a double track tunnel about 3.7 miles long running from a point approximately opposite West 168th street in Manhattan, under the Harlem river to about Longwood avenue in the Bronx, so as to permit a connection with the New York Connecting Railroad over the Hell Gate bridge, or to the New Haven's yards at Oak Point.

The total cost of the project was estimated at \$141,000,000, subdivided as follows: Cost of the belt line and classification yard, \$42,000,000;

freight and passenger tunnels and connections, \$51,000,000; elevated industrial railroad along Brooklyn water front, \$25,000,000; and the tunnel or connecting link between the New York Central and the New Haven, with all connections, \$23,000,000.

NEW YORK CITY—STATEN ISLAND PIERS. The twelve piers which the city of New York put under in May, 1920, at Stapleton, Staten Island, were reaching completion at the end of the year and formed the largest steamship pier development ever undertaken at one time by the city. This work was described in the *YEAR BOOK* for 1920 and involved a rail connection with the Baltimore and Ohio railroad which extending across Arthur Kill by bridge afforded access to all of the railways entering the port on the New Jersey side.

The Rivers and Harbors bill authorizing the expenditure of \$15,000,000 for maintenance of present works and the prosecution of projects already authorized, under the direction of the Secretary of War and the supervision of the Chief of Engineers, was approved March 1. The bill in addition made \$250,000 immediately available for examinations, surveys and "contingencies for rivers and harbors for which there may be no special appropriation," but no part of this sum was to be spent on projects not already authorized by law. There was also appropriated \$7,170,000 for flood control work.

Later in the year came the annual estimates of expenditures submitted to Congress December 5 by the President and the Director of the Budget. In these requests are made fee appropriations totaling \$27,885,260 for river and harbor work during the fiscal year 1923-24. This was exclusive of the continuing contract work, for which an additional \$7,070,000 was asked. Of this latter amount, \$6,670,000 was intended for flood-control work on the Mississippi and \$400,000 for flood control work on the Sacramento river.

The Chief of Engineers of the U. S. Army in his annual report to the Secretary of War recommended an expenditure of approximately \$43,000,000 for rivers and harbors in the fiscal year 1923, exclusive of a proposed \$7,500,000 for the Muscle Shoals, Ala., project in the Tennessee river.

The principal harbor projects so recommended were: New York, \$2,900,000, including \$2,200,000 for the East river and \$350,000 for the Hudson river channel; Philadelphia to the sea, \$3,660,000, including \$500,000 for Philadelphia Harbor and \$1,500,000 for Liston Range; Savannah, \$1,025,000; Norfolk, \$500,000; Los Angeles, \$300,000; Humboldt, Calif., \$400,000 and Gray's Harbor and Bar Entrance, Wash., \$660,000.

Principal river projects were: Mississippi from the mouth of the Ohio to the mouth of the Missouri, \$1,000,000, from the mouth of the Missouri to Minneapolis, \$2,000,000; Southwest Pass, \$1,136,000, and South Pass Channel, \$250,000; Ohio for locks and dams, \$5,000,000 and for general open channel work, \$435,000; Allegheny for locks and dams, \$900,000, and open channel work, \$5000; Detroit, \$1,100,000; Illinois below Copras Creek, \$440,000; Columbia and Lower Williamette below Vancouver and Portland, Ore., \$850,000; Missouri, \$145,000, including \$25,000 from Kansas City to Sioux City and \$20,000 from Sioux City to Fort Benton, Mont., and St. Mary's river, Mich., \$557,000.

Miscellaneous items included \$2,500,000 for the inland waterway from the Delaware river to Chesapeake Bay; \$400,000 inland waterway from Norfolk, Va., to Beaufort Inlet, N. C.; \$6,670,000 for the Mississippi River Commission (flood control); \$548,000 for the California Debris Commission; \$459,155 for the prevention of deposits in New York Harbor.

Aside from those mentioned, there were the usual number of minor projects.

The American Association of Port Authorities held its tenth annual convention in Seattle, Wash., Oct. 11-14. Among the twenty papers presented to the convention a number were descriptions of specific ports, but in most cases there was a discussion of some engineering problem of port design or control. The convention voted approval and support for the War Department's investigation of port terminal charges and practices in America, and also decided to take action to secure the passage by the governments at Washington and Ottawa of laws to overcome the floating oil menace in harbors. Such action was to take the form of a petition in which other bodies would join, which would point out the fire danger to terminals and shipping presented by this menace. Benjamin Thompson, of Tampa, Fla., and M. P. Fennell, Jr., of the Harbor Commission of Montreal were reelected president and secretary, respectively.

Ports and Port Problems figured prominently at the fall meeting of the American Society of Civil Engineers, September 7 and 8, and the papers then presented covered an unusually wide range of activity in this field. This is indicated by the following list of speakers and the titles of their papers:

Frederic W. Cowie, chief engineer, Harbor Commissioners of Montreal, "National Phases of Port Problems"; Major-Gen. Lansing H. Beach, Chief of Engineers, U. S. Army, "Terminals"; Frederic H. Fay, of Fay, Spofford & Thorndike, consulting engineers, Boston, "Development of the Smaller Ports"; M. A. Long, of the M. A. Long Co., engineers and constructors, Baltimore, "Relation of Warehouses to Port Development"; John Meigs, consulting engineer, Philadelphia, "Uncoördinated Design in American Ports"; W. Watters Pagon, consulting engineer, Baltimore, "Brief Comparison of American and Foreign Sea Ports"; Edwin J. Clapp, New York City, "Some Observations on Port Finances"; Carrol R. Thompson, assistant director Department of Wharves, Docks and Ferries, Philadelphia, "Improvement and Development of Ports"; J. A. Bense, consulting engineer, New York City, "Port Problems in New York"; Colonel W. J. Wilgus, consulting engineer, New York City, "Relationship of Rail and Water Carriers"; B. F. Cresson, Jr., chief engineer, the Port of New York Authority, N. Y., "Port Administration"; H. McL. Harding, designing terminal engineer, New York City, "Pier Designs as Developed from Quay Designs."

The part and responsibility of the National Government for the development of harbors and ports was presented in a paper entitled "The Importance of Port Facilities in the Development of a Merchant Marine and Commerce," read before the annual meeting of the Society of Naval Architects and Marine Engineers, by Rear-Admiral H. H. Rousseau, Civil Engineer Corps, U. S. Navy. He advocated national aid only to such ports as

encourage American ships and said that, "With the existing fierce competition between ports, both for business and for appropriations from the national treasury for the further improvement thereof, it would seem to be proper and consistent that Congress should now give definite notice that hereafter preference will be given in making any appropriations for harbor improvements to those ports that show themselves most interested and most successful in carrying out our national policy that the greater part of our foreign commerce shall be carried in American vessels. Compliance with any such policy by a port, or the giving of satisfactory guarantees to fulfill any conditions like this, could be best undertaken by an organized and unified port authority, and the matter of efficient organization is perhaps our ports' greatest need today. . . . Such an act of Congress relative to water terminals and vesting the Secretary of War with discretion to delay or suspend expenditures for the improvement of any port unless at least 50 per cent of the gross tonnage of vessels engaged in foreign commerce entering and clearing from that port is American tonnage, or until satisfactory assurances are received that that percentage will be secured within a reasonable time and will be thereafter maintained, would instantly broaden competition between our ports beyond the present mere unorganized scramble for business on the part of individual carriers and other interests, and would initiate a competition that would bring concrete results in promoting steps to obtain a unified port authority and in assisting our merchant marine to get much needed cargo, as well as passenger business, that at present is going to foreign vessels. . . . Should Congress also direct the Interstate Commerce Commission to exercise its rate-making power so as to give due preference and assistance to those ports where at least 50 per cent of the gross tonnage of vessels engaged in foreign commerce, using that port, is American tonnage, the effect would be striking in enabling our merchant vessels to cope more successfully with foreign competition."

LONDON PORT FACILITIES. During the year the extension of the Royal Albert docks was well under way and the Port of London Authority decided on further development of the water front facilities at London at an estimated cost of over £14,000,000 for the purpose of attracting to that port a portion of the Transatlantic trade handled through Liverpool. It was proposed to provide a floating landing stage 1700 ft. in length, adjoining the Midland Ry. station at Tilbury with a 35-ft. depth of water at low tide. It was also planned to have sufficient additional docks at Tilbury to provide 600 yd. of quay with 42-ft. depth of water. The quay here was completed and equipped with freight-handling machinery and trackage. There were also to be provided extensive dry dock facilities.

ITALIAN HARBOR IMPROVEMENTS. During the year it was announced that the Italian Ministry of Public Works had approved the plans for improvement of the port of Leghorn, prepared by the Leghorn Harbor Works Board in accordance with the governmental project of December, 1916. The plans decided on contemplated the expenditure of 70,000,000 lire (\$13,510,000 at normal exchange) in construction and equipment, of which 37,000,000 lire was for a new harbor basin, 8,000,000 lire for railway terminals, and 25,000,000 lire

for mechanical equipment, warehouses, etc. The carrying out of this project would increase more than twofold the harbor facilities of Leghorn and the work was expected to take 10 years for its completion. An outlet on the sea for the important town of Pisa, 10 miles from Leghorn, by means of an interior waterway was an interesting feature of the project and during the year construction was under way. A Royal Decree of Jan. 29, 1921, authorized the Italian Treasury to set aside 8,000,000 lire for use of the Leghorn Harbor Works Board.

PORT OF SHANGHAI. The Wangpoo Conservancy Board, which has control of the port of Shanghai, China, and was engaged in the preparation of plans for its extensive development, during the year invited Maj.-Gen. G. W. Goethals to represent America on the engineers committee which was to report on improvements to the Wangpoo and Yangtse river. These projects would include not only the main port of Shanghai but the adjacent ports of Woosung and Pootung. Preliminary studies of this port have been in progress for a number of years, and it was expected that work eventually would be started on projects of larger cost and important character.

See BRIDGES, CANALS, DRYDOCKS, LIGHTHOUSES.

PORTS AND HARBORS. During the year there was put into commission at the port of Rotterdam a large floating drydock with a lifting capacity of 46. This dock had a length of 692 ft., an outside width of 167 ft. and an inside width between fenders of 137½ ft. Its first service was in connection with the overhauling of the Holland-American liner *Rotterdam*.

PORTUGAL. A republic occupying the western part of the Iberian peninsula; the most westerly of the states on the continent of Europe. Capital, Lisbon.

AREA AND POPULATION. Area, 35,490 square miles; population (1919), 5,957,985, giving a density of 152.8 per square mile. Of the above area 1236 square miles is that of the Azores and Madeira Islands whose population, included in the above total, was 412,390. For details, see 1917 and preceding YEAR BOOKS. The largest cities with their populations in 1911 were: Lisbon, 435,359; Oporto, 194,009.

PRODUCTION, COMMERCE, ETC. The chief productions are: Corn, wheat, rye, oats, barley, beans, and potatoes, and other vegetables; wine, olive oil, and fruits. Live stock includes: Oxen, pigs, sheep, and goats. The fisheries employed in 1918, 36,673 persons, and the value of the catch in that year was 20,205,006 escudos, of which more than half were sardines. The forests contain valuable timber; and cork is one of the chief sources of wealth. For further details of production, see preceding YEAR BOOK. The following table from the *Statesman's Year Book* of 1921 shows the chief articles of import and export in 1919:

Article	Imports	
	Kilos	Escudos
Coal.....	604,909 ¹	24,621,472
Cotton.....	7,274,259	12,283,579
Fertilizers.....	23,292,265	1,223,109
Beans.....	5,065,228	944,822
Codfish.....	31,776,448	22,291,243
Coffee.....	3,020,649	2,018,947
Rice.....	19,789,626	5,592,334
Animal fats.....	1,272,137	584,849
Rubber.....	308,190	17,834,434

Article	Exports	
	Kilos	Escudos
Chemicals.....	1,525,891	412,022
Manufactured cork.....	3,597,929	914,285
Raw cork.....	1,462,925	44,214
Raw hides.....	1,577,867	1,641,477
Olive oil.....	720,360 ¹	485,412
Rosin.....	1,661,335	277,504
Wooden planks.....	4,849,238	220,692
Raw wool.....	1,082,128	557,475
Sardines.....	4,723,752	1,010,922

¹ Tons.

² Litres.

In 1919 exports were valued at 110,554,000 escudos and imports at 231,603,000 escudos (escudo = \$1.08 at par, but varied widely during this period. Trade with the colonies has not reached its full development, though it has attained a considerable volume. During the ten years before the war, that is to say, the period, 1904-13, colonial goods imported into the country were valued at about \$600,000,000, while Portugal exported to the colonies about \$300,000,000, the large balance in favor of Portugal being chiefly the profits of Portugal merchants and steamship companies. This surplus in imports was not all consumed in the mother country, but resold to importers in other countries. During the past twenty-five years the direct trade between the Portuguese East African colonies and foreign countries has been increasing, while the trade of the West African countries, on account of the easier communication with Portugal, has been mainly with Lisbon.

Economic conditions in the summer of 1921 were reported as very unfavorable. The high exchange rates were materially affecting imports. Increased inflation through extension of bank loans was reported. The financial situation seems to be growing worse. This was somewhat indicated by the fact that the government bank had increased the discount rate to 7 per cent. Government reports for the fiscal year show that expenditures were exceeding revenues. Revenues were less than the budget estimate by 160,000,000 escudos. It was believed that the government would be unable to meet the interest on its foreign debt unless a new loan were floated. Exports in the summer were decreasing, while imports remained stationary. The market was generally understocked as regards cotton, coal, wheat, corn, lumber, petroleum products, machinery, locomotives, and railway material. There was a notable decrease in the exports to the United States and to England. Railway mileage, Jan. 1, 1921, 2128.

DEFENSE. The army is a militia based on conscription and consisting of active, reserve, and territorial forces, ten years' service being required in the first two, and eight in the third. The peace strength of the active army is placed at 30,000.

During the war Portugal sent to France 65,062 officers and men, of whom 1862 were reported killed, 5224 wounded, and 6678 prisoners. See NAVAL PROGRESS.

GOVERNMENT. The constitution dates from August 20, 1911, which established the basis of the republic, the monarchy having been overthrown in the preceding year. Executive power is vested in a president, elected by parliament for four years; and legislative power is in a parliament, consisting of two chambers, namely, the upper chamber, elected by the municipal councils; and

the lower chamber or national council, consisting of 164 members and elected by direct vote for three years. The president of the republic in 1921 was Dr. Antonio Jose de Almeida. The ministry as constituted, March 2, 1921, was as follows: Premier and Minister of the Interior, Dr. Bernardino Machado; Foreign Affairs, Domingos Pereira; Finance, Antonio Maria Silva; Justice, Lopes Cardoso; War, Alvaro Castro; Marine, Fernando Brederode; Colonies, Faiva Gomes; Commerce, Antonio da Fonseca; Education, Julio Martins; Labor, Domingues dos Santos; Agriculture, S. Durao.

HISTORY

MINISTERIAL CRISES. On February 18 in consequence of insurgent movements among the military and professional classes, the Pinto ministry resigned, and a new ministry was appointed under Bernardino Machado, February 24. (See above.) This government was overthrown in turn, May 23, and was succeeded by a new ministry under Thomé Barros Queiroz, Prime Minister and Minister of Finance. The election of July gave the Queiroz Ministry sixty-five seats in parliament where its financial measures of reform had the support of fifty-seven Democrats. These assured it a large majority, but the Prime Minister's own party, the Liberals, revolted from him, and they were followed by others. The result was the overthrow of his government. He was succeeded as prime minister by Senhor Antonio Granjo, August 30, who formed a coalition ministry which was regarded as merely temporary.

ASSASSINATION OF THE PRIME MINISTER. On the occasion of a revolutionary outbreak on October 20, Senhor Antonio Granjo and several other officials were killed in a rising of the military party. According to press dispatches the Portuguese troops remained faithful to the government, marched at once on Lisbon, and put down the insurrection. A new government was elected and one of its first acts was to declare the country under a state of siege for a period of fifteen days. The inhabitants of Lisbon were forbidden to appear in the streets after nine o'clock in the evening and soldiers patroled the city and disarmed the citizens. Another decree of the new government was to order the release of the men implicated in the plot which had resulted in the assassination of President Sidonio Paes in December, 1918. According to the press accounts the premiership passed to Cunha Leal, December 15. The new Prime Minister had entered politics only three years before and was barely thirty years of age, having served in the army in Africa and Flanders and attained the rank of captain of the Engineer Corps. He showed firmness and courage on the occasion of his installation when, on being threatened by the revolutionists, he declared that nothing would frighten him from assuming office. He declared the purpose of his ministry was to maintain order and reorganize the administration. First of all the financial situation, which was serious owing to Portugal's failure to increase taxation during the war, must be remedied and measures must be taken to control the high cost of living. In the following week two persons were killed and five others wounded at the capital through an explosion of bombs in process of manu-

facture, in a building that belonged to the General Confederation of Labor, and several arrests were made, December 29.

BOLSHEVISM. Such news as could be had from Portugal in November was alarming, but owing to disturbed conditions could not be verified. The items published indicated a wave of Bolshevism throughout the country. Down to that time disturbances had usually resulted from the rivalry between the political groups, but according to reports in November they were now the result of the Bolshevist movement. The radicals were said to be in control of the great cities, and numerous bomb-throwings and other acts of violence were reported, especially in the province of Alemtejo. At Lisbon an attempt on the American consulate was reported, and it was also said that a Portuguese gunboat had been prevented with difficulty from torpedoing some Spanish ships. In certain British newspapers the possibility of intervention in order to repress Bolshevism was suggested.

PORTUGUESE EAST AFRICA or MOZAMBIQUE. A Portuguese colony on the east coast of Africa with an area of 423,532 square miles; and an estimated population of 3,000,000 natives, 10,500 whites, and 1100 Asiatics and half-castes. It comprises three parts: (1) The province of Mozambique (295,000 square miles); (2) The territory under the Mozambique Company (59,840 square miles); (3) The district under the Nyassa Company (73,292 square miles). In addition to these the right of Portugal to a region south of Rovuma, known as the "Kionga Triangle," was acknowledged at the Peace Conference; and the territory was allotted to her, Sept. 23, 1919. It had been a part of German East Africa. The capital of Portuguese East Africa is Lourenço Marques, the chief port; population in 1912, 13,154, of whom 4691 were Europeans. The other principal ports are Mozambique and Beira. The chief products are: Cocoanuts, sugar, beeswax, and minerals. Imports in 1918, 23,017,816 escudos; exports, 8,124,069; reexports, 23,392,700; transit, 30,357,031.

PORTUGUESE GUINEA. A Portuguese colony on the west coast of Africa, including the archipelago of Bijagaz along with the island of Bolama. Capital, Bolama. Area, 13,940 square miles; population, estimated at 289,000. The principal port is Bissau. In 1919 the imports amounted to 4,661,404 escudos and the exports, to 4,327,272 escudos.

PORTUGUESE LANGUAGE. See **PHILLOGY**, **MODERN**.

POSSART, ERNEST VON. German actor and play producer, died, April 8. He was born at Berlin in 1841; and appeared in his youth as an actor at Breslau, Berne, and Hamburg; entered the Munich Court Theatre in 1864; and became its director in 1875. Two years later he was made director of the Bavarian Royal Theatre. He toured in the United States, Germany, Russia, and Holland from 1887 to 1892; and afterwards directed the Bavarian Hof-theatre from 1895 to 1905. He opened the Prince Regent's Theatre in 1901. Among his most noted rôles were: Nathan Gessler, Mephisto, Iago, and Shylock. He edited German versions of several of Shakespeare's plays; and wrote a few plays and works pertaining to the stage.

POST, JAMES D. See **NECROLOGY**.

POST OFFICE. See UNITED STATES.

POTASH. According to the United States Geological Survey 57 companies, operating 66 plants, produced 166,834 short tons of crude potash material in this country in 1920. This material contained an average of 28.8 per cent or 48,077 short tons of potash (K_2O), which was equivalent to about 19 per cent of the average annual consumption of the country for the five years immediately preceding the World War, this average consumption being estimated at about 250,000 short tons. Nine kinds of raw material were utilized. The production in 1920 did not equal that of 1918 by about 5700 tons of potash, but it exceeded that of any other year and it was almost 50 per cent larger than that of 1919. The sales for the year amounted to 139,963 tons of crude material, containing 41,444 short tons of potash (K_2O), valued at \$7,463,026, an average price of \$1.80 a unit. The stocks reported on hand at the end of the year were 32,378 short tons of crude material, containing 8999 short tons of potash.

In 1920 there were imported and entered for consumption in the United States 918,698 short tons of potash salts, containing 197,795 short tons of potash (K_2O), to be used largely as fertilizer, and 63,563 short tons of manufactured potash salts, containing 26,997 short tons of potash, a total of 982,261 short tons of potash material, containing 224,792 short tons of potash (K_2O), valued at \$43,389,783. For the five years prior to 1913 the United States imported annually from Germany an average of about 250,000 short tons of potash (K_2O).

The discovery of potash in samples of salts were received at the United States Geological Survey from new wells bored for oil at two additional localities in western Texas extended the area in which small amounts of potash salts were known to occur some 30 miles north and 50 miles east of the area of previous discoveries. See FERTILIZERS.

POTASSIUM. See CHEMISTRY, INDUSTRIAL.

POTATO DISEASES. See BOTANY.

POTATOES. The world's potato production in prewar times ranged from 5 to 6 billion bushels. An approximate estimate by the International Institute of Agriculture, Rome, placed the world's yield in 1921 at $4\frac{1}{2}$ billion bushels. According to estimates by the same authority Germany in 1921 produced 985,247,000 bu., Poland, 567,091,000 bu., Czecho-Slovakia, 136,430,000 bu., Canada, 110,895,000 bu., Spain, 102,225,000 bu., Belgium, 93,366,000 bu., and the Netherlands, 84,768,000 bu. The total yield of 20 reporting countries was placed at 2,174,844,000 bu., or $10\frac{1}{2}$ per cent below their aggregate yield in 1920.

The present status of the world's production is indicated by the average yields of the leading producing countries for the five years 1909-13, which were approximately as follows: Germany, 1,500,000,000 bu., the former Russian empire, 1,300,000,000 bu., Austria-Hungary, 600,000,000 bu., France, 490,000,000 bu., and the United States, 357,000,000 bu. The average acre yields for the 5-year period 1910-15 were 222.8 bu. for the United Kingdom, 205.7 bu. for Germany, 145.6 bu. for Austria, 122.2 bu. for Hungary, 116.3 bu. for France, 107.9 bu. for European Russia, and 97.6 bu. for the United States.

Estimates published by the Department of

Agriculture placed the potato production of the United States in 1921 at 346,823,000 bu. as against 403,296,000 bu., in 1920 and 322,867,000 bu., in 1919. The area in potatoes was given as 3,815,000 acres or 158,000 acres more than in the preceding year. The average yield per acre was 90.9 bu., while in 1920 it was 110.3 bu. The average farm value on Dec. 1, 1920, was 111.1 cts. per bushel, making the total farm value of the crop \$385,192,000 or \$76,586,000 less than the corresponding value in 1920 and \$129,663,000 less than that in 1919. Prices were at the lowest level about the time new potatoes appeared upon the markets, but as soon as it was realized that the 1921 crop would be short prices rose. During May an unusually wide difference existed between the prices of old and new potatoes, the new stock selling for approximately 4 times the price of the old.

The United States grades for grading market potatoes had been established at the close of the year in 14 States, and it was estimated that officially about 30 per cent and unofficially 30 to 45 per cent more of the quantities marketed are graded according to these grades. The past year was the first these grades were in use and it was reported that they proved generally satisfactory to both grower and shipper. The growing of certified seed potatoes was extended in a number of States and in Canada during the year. This work was fostered by a committee in charge of seed potato certification appointed by the Potato Association of America. The largest consuming centres of the United States are New York and Chicago, which use annually about 19,000 and 12,000 carloads, respectively.

The following publications relating to potato culture were issued during the year: *How to Grow an Acre of Potatoes*, U. S. Department of Agriculture, Farmers' Bulletin No. 1195; *Potato Production in the South*, U. S. Department of Agriculture Farmers' Bulletin No. 1205; *The Potato Leaf Hopper and its Control*, U. S. Department of Agriculture, Farmers' Bulletin No. 1225.

POTTER, PAUL MEREDITH. Playwright, died in New York City, March 7. He was born at Brighton, England, June 31, 1853; and passed many years as a newspaper man, serving as foreign editor, London correspondent, and dramatic critic of the New York *Herald* down to 1887; and joined the editorial staff of the Chicago *Tribune* in 1888. He wrote *The City Directory*, produced in 1889, which was followed by a long series of successful plays, produced both in this country and abroad, in which many leading actors of the time appeared. The list is too long for reproduction here, but includes among the most popular productions: *Our Country Cousins* (1893); *The Pacific Mail*, written for Crane (1894); *The Victoria Cross*, written for Sothern (1894); *Trilby* (1895); *Under Two Flags* (1901); *The School Girl* (1904); *Nancy Stair* (1905); *The Honor of the Family* (1907); *The Girl from Rector's* (1909). He was American representative at the Congress of Dramatic Art at the Paris Exposition in 1900.

POTTERY PRODUCTS. According to the Geological Survey the value of the pottery produced in the United States in 1920 was about \$105,700,000, an increase of 39 per cent over the value in 1919. The increase in 1920 over 1918 was

65 per cent. As compared with the value in 1910 the value of the pottery marketed in the United States in 1920 increased 213 per cent, and as compared with that in 1900 it increased 434 per cent. Every kind of pottery classified by the Geological Survey increased in value except red and brown white-lined cooking ware and chemical porcelain, neither of which is produced in large quantities, for in 1920 they together amounted to less than 1 per cent of the total value. Whiteware, valued at \$39,360,000, showed the largest increase, \$9,660,000; sanitary ware, valued at \$21,480,000, increased \$7,000,000; porcelain electrical supplies, valued at \$18,560,000, increased \$6,370,000; china, valued at \$11,060,000, increased \$3,435,000. Stoneware, the fifth product in importance, was valued at \$6,025,000, and increased \$1,240,000. If chemical stoneware is added, the value of stoneware was over \$7,000,000, and the increase was \$1,595,000. Whiteware and china, which comprise the general household wares and which constituted 48 per cent of all pottery products, were valued at \$50,420,000, an increase of \$13,095,000. If to this sum is added the value of sanitary ware and porcelain electrical supplies, their value would be \$90,460,000 or 86 per cent of the total value, an increase of \$26,465,000 over the value in 1919.

The imports of pottery for consumption in the United States in 1920 were valued at \$10,850,772, an increase of 50 per cent as compared with those in 1919. Some of this increase was due no doubt to the increase in the selling price of the ware, but the bulk of imports also increased very considerably in 1920. Ninety-six per cent of the value of imports was that of the general ware, of which 93 per cent was decorated. Every variety of pottery classified by the Bureau of Foreign and Domestic Commerce increased in value but two—tobacco smoking pipes and earthenware and crockery not decorated. Decorated china showed the largest increase in value—\$2,129,689—and decorated earthenware the next largest—\$1,329,745. Notwithstanding the great home demand for pottery, the exports of earthen and stoneware, china, and sanitary ware (valued at \$2,837,469) increased \$601,823 in 1920 compared with 1919 and reached their highest value.

tory. In 1855 he became a conductor there and from 1860-63 he was first violin at the Opera Comique. He became a frequent contributor to all the leading French musical periodicals as well as a well-known writer on music for the journals. His work in biography was also well known.

POWER. One of the most important matters under consideration in the United States, and the same was more or less true for Europe and the other continents, was the taking thought to develop such natural resources as would make available economical, convenient, and efficient power as required in industry. In its larger aspect this matter had received the attention of the United States Geological Survey and in Part II of a "World Atlas of Commercial Geography" prepared by its engineers and other experts, is contained a careful study with maps which show the altitude of the land, the annual precipitation, the location and extent of the water powers, along with statistics of estimates of water power already developed and the capacity of water wheels installed.

This is done for the entire world as discussed somewhat later, but in the United States the problem has been handled with more detail, not only involving the extension and development of water-power resources, but also the interconnection and systematic relation of other sources of power, taking into consideration the possibility of installing steam central stations at or near coal mines and transmitting the energy there produced as well as establishing more economical measures for power production and distribution.

SUPERPOWER REPORT. The so-called "Superpower Report" made to the United States Geological Survey by a group of engineers headed by W. S. Murray, had as its object a consideration of the "possible economy of fuel, labor, and material resulting from the use in the Boston-Washington region of a comprehensive system for generating and distributing electricity to transportation lines and industries." The investigation was made possible by a federal appropriation of \$125,000 and \$26,000 was contributed by various utilities.

The superpower zone thus studied was between

VALUE OF POTTERY PRODUCTS IN 1919 AND 1920

	1919 (estimated)	1920 (estimated)	Approximate increase or decrease in 1920	
			Amount	Per cent
Red earthenware.....	\$ 1,160,000	\$ 1,385,000	+	\$225,000 + 19
Red and brown white-lined cooking ware.....	750,000	700,000	-	50,000 - 7
Stoneware.....	4,785,000	6,025,000	+	1,240,000 + 26
Chemical stoneware.....	645,000	1,000,000	+	355,000 + 55
Chemical porcelain.....	180,000	90,000	-	90,000 - 50
Whiteware.....	29,700,000	39,360,000	+	9,660,000 + 33
China.....	7,625,000	11,060,000	+	3,435,000 + 45
Sanitary ware.....	14,480,000	21,480,000	+	7,000,000 + 48
Porcelain electrical supplies.....	12,190,000	18,560,000	+	6,370,000 + 52
Miscellaneous.....	1,462,500	1,604,000	+	1,415,000 + 31
Total.....	\$76,140,000	\$105,700,000	+	\$29,560,000 + 39

¹ Including art pottery, crackle porcelain, doll heads, gas-burner tips, gas-mantle rings, hardware trimmings, heating porcelain, nursery ware, pins, stilt, and spurs for potters' use, porcelain thread guides, radiants, saggers, smoking pipes, soda fountain supplies, and turpentine cups.

² Including art pottery, crackle porcelain, doll heads, earthenware, fittings for textile mills, gas and electric lighting and heating appliances, hardware trimmings, heating porcelain, lead pots, pins, stilt, and spurs for potters' use, porcelain caster cups and door knobs; potters' supplies, smoking pipes, and turpentine cups.

POUGIN, ARTHUR. French musical and dramatic critic, died in Paris, August 8. He was born in 1834 and studied at the Paris Conserva-

the thirty-ninth and forty-fourth parallels of latitude, and extends from the coast approximately 150 miles inland, that is, roughly, the

Atlantic coast from Boston to Washington and inland as far as Harrisburg and Utica. It was of prime industrial importance as within its limits were concentrated one-quarter of the population of the United States and there were operated 315 electric public utilities, 18 steam railroads, and 96,000 industrial plants. In the proposed superpower system the intention was to coordinate and supplement the existing utilities so as to secure to a higher degree the economies incident to their present operation. The first element of the question was to determine the total amount and location of the power load that would be required for private, municipal, industrial, and railroad purposes at a date sufficiently in advance to permit the construction of a system of the highest economy to supply it, and the date selected for such a development was 1930. In the course of this work full consideration was given to and reports made on electric utilities, proposed electrification of heavy traction railroads, nature and cost of the superpower system, steam-electric plants, hydro-electric plants, transmission systems, reliability of service, relation of coal and coal deliveries to the system, use of process fuels, basic costs, and existing stations. Furthermore, the question was taken up on a practical basis so as to secure the greatest return at the earliest possible date in proportion to the capital investment. In this connection the report suggested that the quickest return on the investment in such a superpower system would be obtained by following in chronological sequence an order of procedure as follows:

1. The construction of a steam-electric plant near Pittston, Pa., to supply a part of its energy to the anthracite division of the superpower zone and the remainder to the metropolitan division, particularly New Jersey.
2. The construction of a steam-electric plant near Sunbury, Pa., to supply a part of its energy to the anthracite division, a part to the Reading load centre, and the remainder to Philadelphia.
3. The construction of hydro-electric plants on the Delaware and Susquehanna rivers to supplement the steam plants indicated above.
4. The progressive development of the Hudson River projects to meet the growth of energy requirements at the Schenectady, Utica, Poughkeepsie, and Pittsfield load centres.
5. The construction of a steam-electric plant

other parts of the United States, was not particularly rich in hydro-electric power resources and possibilities. Under favorable conditions of development by 1930, about 21 per cent of the total energy requirement could be supplied from water power, that is, about six billion kilowatt-hours. Inasmuch as some of the best coal deposits in the world were situated near the zone itself, it was deemed desirable in the interests of the fullest economy to join the hydro-electric supply power to the steam electric supply so as to produce a maximum of energy for a minimum investment of capital and a minimum operating expense. This of course would involve locating the steam-electric plants where they would secure the advantage of low freight rates, and especially easy coal-delivery routes and ample condensing water.

Such an arrangement would mean the building of base load steam plants to range from 60,000 to 300,000 kw., in capacity, and turbo-generators of at least 30,000 kw. capacity would be used in every such station. Such plants it was estimated would be able to produce electric energy at 0.99 c. per kilowatt-hour, as compared with 2.12 c., the average cost at a steam station in 1919. The unit investment cost in new power plants for the superpower system would be \$118.25 per kilowatt of effective capacity. The unit reproduction cost of the electric utilities in 1919 was \$156 per kilowatt.

The Superpower Report estimated the requirement of energy supplied through the electric utilities for municipal, private, industrial, and railroad purposes in 1930 to be 31,000,000,000 kw.-hr., and stated that such an amount of energy could be supplied by a coordinated power system at an annual cost of \$239,000,000 less than by the uncoordinated system in use in 1921. The total investment involved in developing such a system of generating and transmission facilities would be in excess of \$1,000,000,000, of which \$400,000,000 would represent the value of existing facilities. This superpower zone included some 36,000 miles of railroad, measured as single track, and of this there was no question but that about 19,000 miles could be profitably electrified, so as to produce by 1930 an annual saving of \$81,000,000 compared with the cost of operation by steam. The capital expenditure necessary to electrify the 19,000 miles would be \$570,000,000.

PROPOSED HYDRO-ELECTRIC DEVELOPMENT OF SUPERPOWER SYSTEM PROJECT

	Capacity, kw.	Output (millions of kw.-hr.)	Investment	Production cost (mills per kw.-hr.)
Potomac	200,000	950	\$22,000,000	3.36
Susquehanna	185,000	1,230	28,000,000	3.22
Delaware	350,000	1,250	51,500,000	5.95
Hudson	150,000	900	38,350,000	5.84
Connecticut	165,000	760	29,000,000	5.455

near Boston to supply the Boston, Lowell, and Newburyport load centres.

6. The construction of a steam-electric plant near New Haven to supply the New Haven, Bridgeport, Waterbury, and Norwich load centres.

7. The partial construction of the first hydro-electric plant in the development of the Potomac river as soon as the power demands of the Baltimore and Washington load centres require additional plant capacity.

The region under study, unlike the West and

One of the features of the superpower survey and report was the proposition to develop additional water power, particularly on the St. Lawrence river, thus making it possible to increase the load carried by hydraulic plants from 15 per cent in 1919 to 21 per cent in 1930. By bringing St. Lawrence power over long-distance transmission lines to the system as laid out and planned in the survey it would be possible to save, according to estimate, over \$11,000,000 a year in the cost of energy. Furthermore the

total capital investment required to develop power purchased from this source would be \$25,000,000 less than the cost of steam plants to render equivalent service.

FEDERAL WATER POWER. All important water-power development in the United States must be taken under the direction of the Federal Power Commission established by the Water Power Act of 1920. Up to the end of 1921, there had been filed with the commission 260 applications involving over 16,000,000 hp. of which about 10,500,000 hp. was primary power and 5,500,000 secondary power. In the great majority of these applications the development and sale of power as public utilities was contemplated. The reports of the Bureau of the Census for 1917 showed an aggregate water-power development in the United States in that year of about seven million horsepower. The total at the end of 1921 was probably between eight and nine million horsepower or even more according to the tables prepared by the geological survey, that is, approximately one-half the amount represented by the applications before the commission in 1921. In 1917 there were only 259 water-power stations of a capacity in excess of 1000 hp. engaged in the public utility service, with an aggregate capacity of 4,000,000 hp. The average investment in plant and equipment of these stations was \$240 per hp. Assuming that the average investment required in the projects before the Commission to be only one-half as much, an expenditure of \$2,000,000,000 would be involved, not considering the collateral expenditures for distribution systems, for customers' installation, and in accessory industries, which naturally would be several times greater.

In addition to receiving these applications the Federal Power Commission was able to act on a number and between March 1, 1921, and the end of the year there was authorized by that body the issuance of thirty licenses involving 1,269,000 hp. and twenty-four preliminary permits involving 1,280,000 hp., a total of 2,549,000 hp. The commission by the end of the year had taken final action upon one-third of the applications filed. Several of the applications approved under the Act involved projects for the construction of which specific congressional authority was sought for many years, but never obtained. In this connection there were included important projects on the Niagara, on the Connecticut river at Enfield Rapids, and on the Coosa river in Alabama. So important and promising were these hydro-electric schemes that notwithstanding

the industrial depression and the uncertain financial situation, projects aggregating 1,277,000 hp. and an investment of approximately \$100,000,000 were under construction during 1921 in New York, Alabama, Wisconsin, Oregon, and California.

At Niagara Falls it was stated that only about one-sixth of a potential water power of 4,000,000 horsepower available without impairing the scenic beauty of the Falls had been developed, while the plan for the development of the St. Lawrence river involved the building of two and later a third dam at each of which a hydro-electric station would be installed with a total ultimate capacity of some 4,000,000 kilowatts. Among the more important power developments proposed or under consideration during the year were, the 75,000 kilowatt Great Falls project on the Potomac, a Delaware river development to total 500,000 kilowatts with a 100,000 kilowatt steam plant; a development of 2,500,000 horsepower on the Colorado river by the Southern California Edison Co., the 400,000 horsepower Kings river project of the San Joaquin Light and Power Corporation, and a 100,000 horsepower project on the Coosa river in Alabama.

POWER RESOURCES OF THE UNITED STATES. In view of the foregoing projects it is of interest to consider what are the water-power resources of the United States, and for that purpose recourse may be had to the Atlas of the Geological Survey from which the accompanying tables are taken. The figures given are said to be most conservative both for the minimum and maximum potential resources, and in some States as in New England complete development would mean the building of plants with four times the estimated capacity at low water. Moreover, if all the water power in the United States were similarly developed, the total capacity of the plants would be 112,000,000 hp. Acting on the correctness of this estimate it would appear that in 1921 the water-power resources of the United States were only about 8 per cent developed.

POWER RESOURCES OF THE WORLD. What is true for the United States also applies to the whole world, for while in 1920 the estimated potential water power of the world was nearly 440,000,000 hp. when the streams are at ordinary low-water stage the capacity of power generating plants installed was but little more than 23,000,000 hp., or more than 5 per cent of the estimated potential water power. In fact considering the less known regions it was probable that only 2 or 3 per cent of the total potential water power had been developed. The extreme ultimate development with

WATER-POWER RESOURCES AND INSTALLED CAPACITY OF WATER WHEELS IN THE UNITED STATES, BY GEOGRAPHIC DIVISIONS, 1920

From U. S. Geological Survey

States and divisions	Total potential water power		Installed capacity of water wheels horsepower,
	Minimum horsepower	Maximum horsepower	
New England.....	868,000	1,605,000	1,381,000
Middle Atlantic division.....	1,357,000	2,488,000	1,735,000
East North Central division.....	832,000	1,604,000	812,000
West North Central division.....	902,000	1,958,000	508,400
South Atlantic division.....	2,346,000	4,257,000	1,381,500
East South Central division.....	1,087,000	1,964,000	504,500
West South Central division.....	353,000	822,000	25,700
Mountain division.....	8,694,000	16,181,000	1,006,600
Pacific division.....	11,504,000	23,078,000	1,893,000
United States.....	27,943,000	53,906,000	9,242,700

the greatest possible conservation of stream flow by storage it was thought might reach as high as 5 to 10 billion horsepower, but such a figure was purely speculative.

CAPACITY OF STATIONARY PRIME MOVERS IN THE UNITED STATES

Year	Horsepower		Percentage of water power
	Total	Water power	
1900.....	17,500,000	3,300,000	18.8
1902.....	19,500,000	3,700,000	19.0
1904.....	22,500,000	4,100,000	18.2
1906.....	25,500,000	4,700,000	18.4
1908.....	29,000,000	5,380,000	18.5
1910.....	32,500,000	6,000,000	18.4
1912.....	36,000,000	6,700,000	18.6
1914.....	38,500,000	7,400,000	19.2
1916.....	42,000,000	8,200,000	19.5
1918.....	45,000,000	8,800,000	19.5
1920.....	49,000,000	9,500,000	19.4

NOTE.—The above estimates are based on the Conservation Commission's report of 1908; census reports of 1904, 1909, and 1914 on manufactures; and census reports of 1902, 1907, 1912, and 1917 on central electric stations and electric railways.

WATER POWER IN CANADA, JAN. 1, 1920

Provinces	Horsepower developed	Horsepower undeveloped
Yukon.....	13,199	100,000
British Columbia.....	308,167	3,000,000
Alberta.....	32,992	486,000
Saskatchewan.....	.....	567,000
Manitoba.....	83,447	3,218,000
Ontario.....	1,015,726	5,800,000
Quebec.....	910,029	6,000,000
New Brunswick.....	18,080	300,000
Nova Scotia.....	34,323	100,000
Prince Edward Island.....	1,933	3,000
Newfoundland.....	60,000	400,000
Total.....	2,477,000	19,954,000

Considering the comparative resources of the continents as brought out in the table it would appear that North America containing as it does less than 15 per cent of the water-power resources of the globe, had developed more water power than all the rest of the world. Naturally about 41 per cent of the developed water powers of the world were to be found in the United States. European countries, particularly Germany, the territory comprised in the former empire of Austria-Hungary, Norway, Sweden, France, Italy, and Switzerland, had developed a relatively large percentage of their water power, and the percentage was greater in Germany than in any other country of Europe. In all of these countries hydro-electric developments, particularly in connection with transportation, were under consideration and installation as fast as funds were available.

In Switzerland the potential water power had been estimated at 750,000 hp. at low water and 2,500,000 hp. for a flow available six months of the year, and one engineer estimated that 3,000,000 hp. may be developed at low water with storage. Switzerland stands unique among the nations of the world in the large number of small plants. The plants below 20 hp. capacity in 1918 numbered 6025 and their total capacity was only 38,880 hp., or an average of about 6 hp. each. On Jan. 1, 1918, the number of plants of more than 20 hp. was 840 and their capacity at mean stage was 556,200 hp.

Nearly half of the 439,000,000 hp. potential water power in the world (or 190,000,000 hp.) is in Africa, but only about 11,000 hp. had been

developed. The Kongo river alone afforded greater water-power resources than any other river system in the world and more than one-quarter of the potential water power of the world is in this one river basin. Up to 1921 this great resource was undeveloped. It was estimated that on this river for 90 miles, above tidewater, there could be developed more than 100,000,000 hp.

See WATER WHEELS and TURBINES; STEAM ENGINES; MUSCLE SHOALS.

DEVELOPED AND POTENTIAL WATER POWER OF THE WORLD IN 1920 IN HORSEPOWER

	Developed	Potential
North America.....	12,210,000	62,000,000
South America.....	424,000	54,000,000
Europe.....	8,877,000	45,000,000
Asia.....	1,160,000	71,000,000
Africa.....	11,000	190,000,000
Oceania.....	147,000	17,000,000
Approximate total.....	23,000,000	439,000,000

PRADILLA, FRANCISCO. See NECROLOGY.

PRADO, JAVIER. Peruvian scholar and statesman. See SPANISH LITERATURE.

PRAIRIE PROVINCES. The name applied to the three Canadian provinces of Manitoba, Saskatchewan, and Alberta; separated from the United States on the south by the 49th parallel of latitude. Area estimated at 758,817 square miles; population according to the census of June 1, 1916, 1,698,220. According to the preliminary returns of the census of 1921, Manitoba had a population of 613,008; and Alberta, 581,995.

PRATT INSTITUTE. A non-sectarian co-educational institution of the higher learning at Brooklyn, N. Y. It comprises schools of fine arts and applied science, household sciences and arts, sciences and technology, and library science. The total enrollment for the fall was 3766. The faculty numbered 153 and the library contained 127,000 volumes. President of the Board of Trustees, Charles M. Pratt; Executive head, Frederic B. Pratt.

PRESBYTERIAN CHURCH. United under the Alliance of the Reformed Churches throughout the world holding the Presbyterian system are one hundred and six denominational and national churches, situated on all the six continents. In 1921 statistics showed that there were about 41,500,000 members and adherents, besides 5,000,000 Reformed Lutherans. The largest branch of the denomination is the Presbyterian Church in the United States of America. The following figures are given for 1921: 46 Synods, 302 Presbyteries, 9979 ministers, 45,581 elders, 17,714 deacons, 9842 churches, 1,722,361 communicants, 1,433,292 Sunday school scholars; \$3,701,369 contributed for Home Missions, \$4,200,144 for Foreign Missions, \$1,077,067 for Education, \$30,996,123 for congregational expenses, and with other benevolent contributions for the year, making a total expenditure of \$47,036,442. During the year the Presbyterian Church in the United States had the greatest number of accessions on confession of faith in its whole history, 122,231 being added to the Church on examination.

The Presbyterian Church in the United States is a separate denomination, commonly called "The Southern Church" which had 397,058 Com-

municants in 1921. The United Presbyterian Church of North America had 212,621 communicants in 1921. There are two branches of the denomination in Canada, the largest of which is the Presbyterian Church of Canada, which had 350,674 communicants in 1921. The Church of Scotland had about 10,000, while adherents for both churches numbered about 700,000.

The following figures (1921) were approximately correct for the entire Alliance of the Reformed Churches holding the Presbyterian System:

IN THE UNITED STATES	
	Communicants
The Presbyterian Church in the U. S. A.	1,722,361
The Presbyterian Church in the U. S.	397,058
The United Presbyterian Church of N. A.	212,621
The Reformed (Dutch) Church in America.	135,674
The Reformed Church in the United States.	331,337
The Christian Reformed Church in N. A.	42,854
The Reformed Presbyterian Church Synod.	8,433
The Associate Reformed Presbyterian Synod.	16,228
The Reformed Presbyterian Church, General Synod.	2,700
The Cumberland Presbyterian Church.	63,924
The Cumberland Presbyterian Church (Colored).	15,000
Total.	2,948,190
Adherents.	6,000,000
IN MEXICO	
The Presbyterian Church in Mexico.	5,195
IN CANADA	
The Presbyterian Church in Canada.	350,674
The Church of Scotland in Canada.	10,000
Adherents.	700,000
IN ENGLAND AND WALES	
The Presbyterian Church of England.	83,710
The Synod of the Scottish Church in England.	4,047
The Presbyterian Church of Wales.	187,575
Adherents.	800,000
IN IRELAND	
The Presbyterian Church in Ireland.	105,462
The Reformed Presbyterian Church of Ireland.	3,489
Adherents.	300,000
IN SCOTLAND	
The Church of Scotland.	728,239
The United Free Church of Scotland.	529,610
The Free Church of Scotland.	8,192
The Reformed Presbyterian Church of Scotland.	930
The United Original Secession Church.	3,561
Adherents.	3,000,000
IN EUROPE	
The Reformed Helvetic Church at Vienna.	3,000
The Evangelical Church of the Czech Brethren.	200,000
The Magyar Reformed Church in Hungary.	1,500,000
The Magyar Reformed Church in Czecho-Slovakia.	250,000
The Magyar Reformed Church in Transylvania.	700,000
The Magyar Reformed Church in Jugo-Slavia.	50,000
The Union of Evangelical Churches in Belgium.	7,866
The Missionary Christian Church in Belgium.	7,489
The Reformed Evangelical Churches of France.	66,623
The Free Evangelical Churches of France.	3,000
The National Union of the Reformed Churches of France.	56,518
The Waldensian Evangelical Church of Italy.	18,725
The Reformed Church of the Netherlands.	865,957
The Reformed Churches of the Netherlands.	225,935
The Federation of the Evangelical Churches of Switzerland.	2,218,589
The National Protestant Church of Geneva.	16,000
The Evangelical Reformed Church of Hanover.	135,042
The Reformed Church of Lippe.	128,955
The Evangelical United Church of Prussia.	338,500
Total.	6,792,199
Adherents.	15,000,000

MISCELLANEOUS

Asia.	304,326
Africa.	454,453
South America.	27,812
West Indies.	18,943
Australasia.	121,565

Total.	927,099
Adherents.	3,000,000

Grand Total of Communicants and Adherents.	41,500,000
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SABBATH SCHOOL STATISTICS OF PRESBYTERIAN CHURCHES IN THE UNITED STATES, 1921

The Presbyterian Church in the U. S. A.	1,448,054
The Presbyterian Church in the U. S.	370,840
The United Presbyterian Church of N. A.	161,167
The Reformed (Dutch) Church in America.	134,795
The Reformed Church in the United States.	297,455
The Christian Reformed Church in N. A.	27,000
The Reformed Presbyterian Church Synod.	8,693
The Associate Reformed Presbyterian Synod.	14,798
The Reformed Presbyterian Church, General Synod.	2,000
The Cumberland Presbyterian Church.	42,288
The Cumberland Presbyterian Church (Colored).	12,000

Total.	2,519,090
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Mexico.	3,726
Canada.	286,889
England and Wales.	165,000
Ireland.	101,413
Scotland.	517,000
In Europe.	600,000
In Asia.	88,000
In Africa.	56,000
In South America.	15,000
In the West Indies.	17,000
In Australasia.	112,000

Grand Total.	4,481,118
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PRESS, JOSEF. See MUSIC, *Artists, Instrumentalists*.

PREUS, CHRISTIAN KEYSER. See NECROLOGY.

PRIBILOF ISLANDS. See ALASKA.

PRICES. According to the United States Department of Labor, the year 1921 was a period of falling prices for many important commodities. From the beginning to the middle of the year prices declined rapidly, reacting to some extent in late summer and autumn but subsiding again in the last three months. For practically all commodities, except cotton and its manufactures, which were influenced by the short crop, prices at the end of the year were considerably lower than at the beginning. Among food commodities showing decided price decreases in the first half of the year were cattle, hogs, butter, eggs, milk, wheat, wheat flour, corn, oats, rye, rye flour, rice, and sugar. Cotton and woolen goods, hides, leather, shoes, coal, pig iron, steel, tin, and petroleum also declined in price, as did most building materials. Potatoes in the Chicago market decreased greatly in the first four months, but reached a high peak in August. In the second half of 1921 prices of some articles rose sharply, as butter, eggs, milk, rice, cotton, cotton goods, hides, pig tin, lead, zinc, crude and refined petroleum, and lumber. Brick, lime, cement, plate glass, nails, structural steel, and linseed oil, on the contrary, decreased materially in price during the period stated.

A survey of thirty-two cities of the United States showed a decrease of 19.5 per cent from June, 1920, to December, 1921, and of 1.7 per cent from September, 1921, to December, 1921. The accompanying table based in the reports of the thirty-two cities shows changes in the cost of living, 1913-1921.

CHANGES IN COST OF LIVING IN THE UNITED STATES, 1913 TO DECEMBER, 1921

Item of expenditure	Per cent of increase from 1913 (average) to—											
	Dec., 1914	Dec., 1915	Dec., 1916	Dec., 1917	Dec., 1918	June, 1919	Dec., 1919	June, 1920	Dec., 1920	May, 1921	Sept., 1921	Dec., 1921
Food.....	5.0	5.0	26.0	57.0	87.0	84.0	97.0	119.0	78.0	44.7	53.1	50.0
Clothing.....	1.0	4.7	20.0	49.1	105.3	114.5	168.7	187.5	158.5	122.6	92.1	84.4
Housing.....	(1)	1.5	2.3	.1	9.2	14.2	25.3	34.9	51.1	59.0	60.0	61.0
Fuel and light.....	1.0	1.0	8.4	24.1	47.9	45.6	56.8	71.9	94.9	81.6	80.7	81.1
Furniture and furnishings.....	4.0	10.6	27.8	50.6	113.6	125.1	163.5	192.7	185.4	147.7	124.7	118.0
Miscellaneous.....	3.0	7.4	13.3	40.5	65.8	73.2	90.2	101.4	108.2	108.8	107.8	106.8
Total.....	3.0	5.1	18.3	42.4	74.4	77.3	99.3	116.5	100.4	80.4	77.3	74.3

¹ No change.

PRIMITIVE METHODIST CHURCH. See METHODISTS, WESLEYAN.

PRINCE EDWARD ISLAND. One of the Canadian Maritime Provinces, the smallest province in the Dominion; situated at the mouth of the St. Lawrence. Area, 2184 square miles; population (1911) 93,728, according to the preliminary figures of the census of 1921, 88,536. The capital and largest town is Charlottetown, with a population (1911) of 11,203; (1921) 12,329. It is under a lieutenant-governor and a legislative assembly of 30 members, elected for four years, one-half on a suffrage based on property, and one-half, on manhood suffrage. At the beginning of 1921 the members of the legislative assembly were distributed by political parties as follows: Liberals, 26; Conservatives, 4. Lieutenant-Governor at the beginning of 1921, Murdock McKinnon; Prime Minister, John H. Bell.

PRINCETON UNIVERSITY. A non-sectarian institution for the higher education of men at Princeton, N. J.; founded in 1746. The enrollment for the fall of 1921 was 2067. The faculty numbered 217. The library contained 500,000 volumes. The productive funds amounted to \$12,137,784, and the income to \$1,244,500. President, John Drier Hibben.

PRITCHARD, JETER CONNELLY. Judge, died, April 10. He was born at Jonesboro, Tenn., July 12, 1857; and after a common school education, was engaged in local journalism until 1887, when he was admitted to the bar and began practice at Marshall, N. C. He was three times elected a member of the North Carolina house of representatives and was United States senator from 1894 to 1903. He was made associate justice of the supreme court of the District of Columbia in 1903, and was circuit judge of the 4th circuit from 1904 to 1911, and judge of the circuit court of appeals after Jan. 1, 1912. He was president of the North Carolina Protective League.

PRIVATE BANKS. See STATE BANKS.

PROBATION. See JUVENILE COURTS.

PROKOFIEV, SERGEI. See MUSIC, *Novelties, Opera.*

PROTESTANT EPISCOPAL CHURCH. A denomination similar in its doctrines to the Church of England, founded by members of that church in this country at the time of the American Revolution, and now one of the largest single bodies in the United States. In 1873 there was a separation of a few churches from the main body which became the Reformed Episcopal Church. The latter is less ritualistic in its ceremonies but otherwise very similar. (See REFORMED EPISCOPAL CHURCH.) Complete statistics for the Protestant Episcopal Church in 1921 were not available. There were 1,104,029 communicants, as compared with

1,077,042 at the beginning of 1920. Contributions totaled \$34,873,221.20 and ministers numbered 6001. There were 8190 churches in 1920. A new canon adopted at the General Convention in 1920 provided for the organization of the Presiding Bishop and Council. This Council, it was declared, should among other things exercise all the powers of the Domestic and Foreign Missionary Society and have charge of the unification, development, and prosecution of the work of Missions, Church Extension, Religious Education and Christian Social Service. The Missionary Society, however, still retains its corporate existence and continues to receive and hold bequests, trust funds, and titles to property of all kinds. Foreign Missionary work is being carried on in Africa, China, Japan, Haiti, Brazil, Cuba, and Mexico. Domestic missionary work is conducted for the Indians, the negro communities, the Swedes, the Japanese in California and the deaf mutes in the South and West. This department also supervises the work in Hawaii, the Philippines, Porto Rico, the Panama Canal Zone, and Alaska. A Woman's Auxiliary does much valuable work also. The official magazine of the Domestic and Foreign Missionary Society is *The Spirit of Missions*.

There are several societies among the male membership of the church. The chief organization is the Brotherhood of St. Andrew which according to latest statistics had about 1200 chapters and 8000 members. A boys' organization is maintained called the Knights of St. Paul, with 160 chapters. Other special organizations for mission work are: the Church Mission to Deaf Mutes, Society for the Promotion of Church Work Among the Deaf Mutes, the Mid-Western Deaf Mute Mission, Conference of Church Workers among the Deaf, and the Seabury Society of New York. There are also national organizations for women and girls. Among these may be mentioned the Girls' Friendly Society in America, the Order of the Daughters of the King; organizations for the Increase, Aid and Better Sustenance of the Ministry, are the Clergymen's Mutual Insurance League, the Clergymen's Retiring Fund; organizations for education purposes, church defense and propaganda are The Protestant Episcopal Society for Promotion of Evangelical Knowledge, the Clerical Union for the Maintenance and Defense of Catholic Principles, the American Church Union, Albany Cathedral Summer School, Society for the Home Study of Holy Scripture and Church History, Cambridge Conference, the Church Periodical Club, New York Bible and Common Prayer Book Society, the Church Historical Society, the Church Mission Publishing Company, the American Society of Church Literature, and the Joint Diocesan Lesson Board; organizations

for social betterment, for the Advancement of the Interest of Labor, are the Church Socialist League, the Church Temperance Society, the Church Mission of Help, and the Society for Social Advance. There are many other local societies established for promoting church unity, various guilds for devotional purposes, and religious orders for both men and women.

The Rt. Rev. Thomas F. Gailor of Tennessee is President of the Council; Rev. Franklin J. Clark is secretary and Lewis B. Franklin treasurer. The Most Rev. Daniel Sylvester Tuttle of St. Louis, Mo., is the presiding Bishop. Offices of the national organization are maintained at 281 Fourth Avenue, New York City.

PROUTY, CHARLES AZRO. Lawyer and public official, died at Newport, Vt. July 8. He was born at Newport, Vt., Oct. 9, 1853; graduated at Dartmouth in 1875; was admitted to the Vermont bar in 1882; and practiced at Newport, Vt., until 1896. He was a member of the Vermont house of representatives in 1888. From December, 1896, to Feb. 3, 1914, he was a member of the United States Interstate Commerce Commission, and was chairman of that body from 1912 to 1913. In February, 1918, he was appointed director of the division of public service and accounting in the railway administration staff at Washington.

PROVENÇAL LANGUAGE AND LITERATURE. See PHILOLOGY, MODERN.

PROVIDENCE, R. I. See GARBAGE AND REFUSE DISPOSAL.

PRUSSIA. Until the October revolution of 1918 a kingdom of the German empire; proclaimed a republic, Nov. 13, 1918. Capital, Berlin. Area before the war, 134,650 square miles; population, according to the census of Dec. 1, 1910, 40,165,219. According to estimates at the beginning of the year the area after the execution of the terms of the Treaty of Versailles would be 113,852 square miles, with a population (1919 estimates) of 37,075,240, giving a density of 325.6 per square mile. The above excludes the Saar District and Eupen and Malmedy and does not allow for changes following the decision in respect to Upper Silesia. See the articles UPPER SILESIA and WAR OF THE NATIONS. In 1910 the Protestants numbered 24,830,547 and the Roman Catholics, 14,581,829. The movement of population in 1918 was as follows: Births, 630,524; deaths, 1,035,279; marriages, 229,851. The chief cities with their populations in 1919 were: Berlin, 1,902,509; Charlottenburg, 322,766; Cologne, 633,904; Breslau, 529,260; Essen, 439,257; Frankfurt (Main), 433,002; Neukölln, 262,127; Duisburg, 244,302; Stettin, 232,726; Kiel, 205,330. The latest available statistics for education date from before the war and will be found in preceding YEAR BOOKS. There are 12 universities, with 2070 members of the teaching staff, and 42,000 students, including 4150 women (1918-19).

Under the new constitution adopted, Nov. 30, 1920, the government is in the hands of the Diet, elected by male and female, equal, secret, and direct suffrage, and a state council, elected by the provincial assemblies. At the head of the government is the cabinet whose premier is elected by the Diet. In the Diet after the elections of February, 1921, the party groups were represented as follows: Majority Socialists, 114; Centre (Catholics), 81; German National Party, 75;

German Peoples Party, 58; Communists, 30; Independent Socialists, 29; Democrats, 6; Quelpas, 11; Economic Party, 4; total, 428. The 74 members of the state council in the spring of 1921 were distributed as follows: Peoples Party and German Nationalists, 27; Social Democrats, 18; Centre, 16; Independent Socialists, 7; Democrats, 4; Communists, 2. The cabinet as constituted, April 18, 1921, was as follows: Prime Minister and Minister of National Welfare, Herr Adam Stegerwald (Centre); Justice, Herr Zehnhoff (Centre); Commerce, Herr Fischbeck (Democrat); the Interior, Herr Dominicus (Official); Agriculture, Herr Dr. Warmbold (Official); Finance, Herr Haenisch; Education and Public Worship, Herr Becker (Official). See GERMANY.

PSYCHICAL RESEARCH. In *Practical Views on Psychic Phenomena* G. E. Wright considers the rules of evidence in their relation to the phenomena of the physical sciences and to the phenomena of the psychical, and concludes that we cannot expect the same laws to apply in the two different domains. The test in science is repetition; does the same sequence of events take place, given the same conditions? The test for psychic phenomena is cumulation; does the evidence support itself, given enough of it? If the principle of the accumulation of evidence is to be the guide, then the question arises: What kind of evidence will finally sum up to a "proof"? and does the evidence which does not sum up have a subtractive value? The question of evidential testimony or messages remains the dominating idea in psychical research circles. In two articles, *The Apocatastasis* (18, 471) and *Two Separate Problems in Psychic Research* (18, 140), J. H. Hyslop insists on the distinction between the problem of origin and the problem of validity, or between the source and the truth of messages. Most critics direct their attack from the point of view of truth, whereas there is no evidence that spirits are more free from error than the living. In a third article, *Credibility and Truth* (18, 86), Hyslop maintains that many of the facts (such as the velocity of heavenly bodies and the vibration-frequency of light) set forth by physical science are far more inconceivable, hence more incredible, than are the phenomena of ghosts and spirits. It is prejudice that makes us accept the one and reject the other. Mrs. W. H. Salter, in *A Further Report on Sittings with Mrs. Leonard* (19, b, 1), finds that new sitters obtain somewhat less positive evidence than do the old; the spirits have to learn to use their means of communication; there must be a rapport established between sitter and medium. Some characteristics of Feda, and perhaps of controls in general, came out; she uses conventional padding, she likes to please the sitter, she shows typical lines of structure which reflect the times (during and after the war all spirits were likely to be young men who died in battle). The control reacts unfavorably upon any attempt to force a crucial test by direct attack. Mrs. Henry Sidgwick reports *An Examination of Book-Tests Obtained in Sittings with Mrs. Leonard* (19, h, 241). The analysis, beyond the attempt to get veridical statements and to throw more light on the habits and ways of Feda, seeks to answer the question of clairvoyance. Feda, the author fears, may get the habit of giving book-tests in and out of season, quite as a matter

of her own imagining. The tests offer some very strong evidence of clairvoyance, but the case is less positive than it should be. The author concludes in favor of clairvoyance as a handmaid of telepathy, if not as the same thing. The two together are more effective than either alone. W. W. Smith, in *A Suggested New Method of Research* (19, a, 401), proposes to use the association method with the psycho-galvanic reflex to determine whether the control is the same or a separate personality from the medium. He assumes that in the case of multiple personality the same or nearly the same affective toning will occur no matter which personality is present. The basis for this assumption is the previous work of Prince and Peterson. G. M. Stratton, in *The Control of Another Person by Obscure Signs* (20, 301), finds in the case of Eugene Rubini, who claims to be impelled or guided to the correct movement, that when there are no possible visual cues present the number of correct movements falls to what chance would demand; the elimination of auditory cues did not affect the results. E. J. Dingwall examines *De Gasparin's Experiments in the Light of Recent Research* (18, 370), and finds that the development of the plasma is a function of the mind of the worldly and that we need not call upon the spirits for help or for explanation. S. Alrutz, in *Problems of Hypnotism: An Experimental Investigation* (19, b, 151), finds that with the passes a plasma exudes from the hands, or from other parts of the body, which effluence different substances absorb, transmit, or reflect. The fact that the presence of the effluence depends upon a state of rapport proves that it is more than mere energetics. E. J. Dingwall, in *The Plasma Theory* (18, 207), considers the phenomenon of the plasma as an established fact. In the case of Miss Goligher, at least, the plasma is a transformation of bodily cells which have a mental as well as a physical nature. Other articles are: H. Thurston, *The Phenomena of Stigmatization* (19, b, 179); J. W. Hayward, *Fortune Telling* (18, 185); W. F. Prince, *An Object Lesson in Reporting* (18, 456); J. H. Hyslop, *Question Begging Explanations* (18, 68); Dr. Hodgson as a Communicator (18, 1); and *Psychic Phenomena in Græco-Roman Times* (18, 419); W. F. Prince, *Peculiar Experiences Connected with Noted Persons* (18, 109; 378); C. C. Carter, *A Lesson in the Psychology of Deception* (18, 252; 320); W. L. Sullivan, *A Case of Witchcraft in a Modern Court* (18, 133); J. H. Leuba, *A Modern Mystic* (1, a, 209); A. B. Thaw, *Psychic Research and Human Welfare* (14, 64); and A. J. Edmunds, *Gregory the Great as a Psychological Researcher* (18, 434). Some books are: W. J. Crawford, *The Psychological Structures of the Goligher Circle*; S. M. Kingsford, *Psychical Research for the Plain Man*; C. Richet, *Premonitions and other Strange Experiences in France during the Great War*; W. W. Kenilworth, *Practical Occultism*; M. E. Monteith, *Fringe of Immortality*; G. E. Wright, *Church and Psychical Research*; M. L. Arnold-Foster, *Studies in Dreams*; J. A. Jackson and H. M. Salisbury, *Outwitting Our Nerves*; D. H. Lawrence, *Psychoanalysis and the Unconscious*; and P. Glenconner, *The Earthen Vessel*. Mention should be made of the abridged reprint of the original work of Mme. D. Home.

PSYCHOANALYSIS. W. Stekel, one of Freud's best known pupils, has recently summed up the present status of this method of treating disease. He entitles his article "The Limitations, Dangers and Abuses of Psychoanalysis." He announces incidentally a cure of paranoia, a mental condition commonly regarded as inalterable and two cures of compulsion neurosis. He analyzed one case of the latter for three years before the psychic trauma was laid bare. Generally speaking these long analyses are unnecessary and injurious, when the patient becomes free from his neurosis only to develop another as the result of his long analytical experience. Stekel believes that the long "dream-pursuit" of the original "soul-injury" is usually not required for the cure of these affections. In some of the worst neuroses there is no evidence that a mental trauma has ever occurred. Not all cases are sexually motivated for in some religion replaces sex; and not all hark back to infantile traumas for some originate in adult life. The trauma in fact does not make the neurosis although the neurotic reacts to the trauma. Janet's "fixed idea" is a greater discovery than the Freudian infantile wish. The neurotic is born with a tendency to fixed ideas but ordinarily can largely suppress the latter. Attempts to locate the fixed idea are often followed by rapid cures.

Stekel says of the libido theory that it is a matter of metapsychics of no value in curing disease. The Oedipus complex has been greatly overemphasized as the central nucleus of neuroses. The castration complex is seldom of value in treatment. The practice of analysis requires much limitation in every direction—for example no neurotic physician or layman should ever practice it for he will be blind to his own complex. It can hardly be learned save from witnessing a first-class man work. The more the analyst knows of medicine, neurology, and psychiatry the better will be his work. Failure is bound to occur at times and analysis is no panacea, but Freud and his disciples have enabled many nominally incurable cases to regain mental and physical health.

PSYCHOLOGY. One of the most welcome events of the year is the reappearance, under the editorship of H. Pierson, of *L'année psychologique*, which ceased publication in 1914. The present volume, with due allowance for time, comes up to the standard of quality set in pre-war years.

Psychology has lost by death G. T. Ladd, Professor of Philosophy and Psychology at Yale University, at the age of 79 years and B. Erdmann, Professor of Philosophy at the University of Berlin, at the age of 70 years.

The annual meeting of the American Psychological Association was held at Princeton, N. J., December 28, 29, and 30, under the presidency of M. F. Washburn. The British Association for the Advancement of Science was held at Edinburgh, Scotland, Sept. 7 to 14; Psychology, under the presidency of C. L. Morgan, had for the first time an independent section.

F. Krueger of Leipzig has begun the publication of a new journal, *Arbeiten zur Entwicklungspsychologie*, of which the first five issues have appeared. *Praktische Psychologie*, edited by W. Moede and C. Pwrowski of Berlin, began publication in 1919. *The Psychopathic Review*,

edited at the Psychopathic Clinic of San Diego, Calif., began publication in September of the present year. The *Journal de Psychologie* has extended its scope to include pathology, and its staff to include men from all the Latin countries. The editorship of *The American Journal of Psychology* passed from G. S. Hall to E. B. Titchener. Hall had been editor since its foundation in 1887.

GENERAL PSYCHOLOGY: SYSTEMATIC, TEXT-BOOKS AND TREATISES. Two articles by E. B. Titchener show clearly the systematic trend of the time. The first, "Brentano and Wundt: Empirical and Experimental Psychology" (2, 108), sets forth the positions, in the light of their derivations, of these two writers, which in many respects were alike yet in emphasis, support, and method were almost direct opposites: this not so much in the language used or even in the topics treated as rather in the outlook. The one appealed to authority to support an empirical structure; the other appealed to the laboratory and to experiment with his eyes turned toward the future. The other article, "Functional Psychology and the Psychology of Act": I (2, 519), treats of the attempts made to erect a system on the basis of the concept of function. Throughout the systems function dominates content; consciousness is dynamic; the view is teleological; and psychology forms the approach to other disciplines. The whole rests on an empirical basis which made inevitable its failure as a science; it reflects the past of Aristotle instead of the future of science. Here, then, we have presented in terms of the men who gave them their modern formulation the two molds in which all systems are cast. The articles raise the question whether any "empirical" system can fulfill the rigorous demands of science.

Yet the teleological appeal is strong and, as M. Bentley in "Dynamic Principles in Recent Psychology" (21, b, No. 3) points out, has always been with us. It was man's earliest conception of mind that it is "an intangible and inscrutable substance which was at once an active personal agent, a private possession, and a unique source of power and authority." Bentley makes out at least four kinds of dynamical elements in recent psychology, for which he finds illustrations in the writings of six modern psychologists. "Much that would otherwise fall to observation and to logic is more elegantly done by a force or power; 'instincts,' 'capacities' and 'intelligences' can thus be hypostatized and made to serve as surrogates for facts. The temptation toward dynamism in psychology bears more than a superficial resemblance to the lure of vitalistic 'causes' in biology." All that mind contributes in addition to processes is meaning; and to attribute this addition to a dynamic element is to introduce a psychosomatic function which in its turn implies bodily terms. Hence if "mental force" is hypothetically assumed in explanation of behavior or pathological cases it should be recognized for what it is and should not be allowed, illegitimately, to supplant mental processes. This is the view of one who would restrict psychology to a definite subject-matter, a subject-matter limited by a strictly scientific point of view, and would not make it coordinate with all human interests and activities as the teleological attitude inclines to

do. Those, on the other hand, who defend dynamism make no distinction between explanation and science by observation, between value and existential subject-matter. They counter with the claim that they thereby enrich the "science," even though it be at the cost of making it non-scientific according to Machian canons. Thus J. M. Fletcher, in "Geneticism as a Heuristic Principle in Psychology" (22, 421), after denouncing as inadequate, due to a too narrow restriction in point of view, the position of the geneticist and the analyst, proceeds: "an inquiry thus prescribed can not pretend to answer all the demands of all sorts of explanations that could arise." He rightly maintains that he speaks for Kantor (*Psych. Rev.*, xxv, 1), for the psychology of dynamics, for the psychology of behaviorism, and for the psychoanalysts. The chief inquiry, according to this view, has reference to the functional efficiency of mental components; the study of mental tests and especially of practical psychology seeks to differentiate the useful and the useless. Fletcher thus brings utility, value, the whole gamut of human significances, into the science of mind. J. R. Kantor, in "The Primary Data of Psychology" (22, 253), lays less stress upon values, but is no less insistent upon the dynamic character of the data of psychology. That these data are dynamic we know from the nature of the response systems of which the stimulus is a part. The individual constitutes a totality or unit, and any reaction involves the whole organism in so far as it participates in the response system; the point of departure is organismic and not mental; the point of view is broad enough to include all of man's responses, meaning fully conceived, to meaningful situations. Meaning, in "An Objective Interpretation of Meanings" (2, 231), is an act or an adjustment which conditions a following response. These precurrent reactions may be overt or implicit. The touching-off of a segment of behavior which in a sense is specific to the situation and which, therefore, reveals evaluation constitutes or is meaning. H. B. English, in "Dynamic Psychology and the Problem of Motivation" (20, 239), feels the impulsion of a dynamic psychology which will tell why and how our minds act rather than what our minds are. To this end we must distinguish mechanism, motive power, and end. The mechanism is an established psychophysical disposition; the mental dynamics come no less from habit than from instinctively given dispositions; and the end follows interest, which is the affective aspect of the unitary psychomotor response. Or, perhaps more specifically, the instincts furnish the drive but acquired dispositions, habits, give direction to it. For M. Prince, in "The Structure and Dynamic Elements of Human Personality" (1, 403), the instincts have a teleological nature. The acquired dispositions use the innate as a foundation, till we have an elaborate structure of complexes and of systems of complexes, all with one or more primary units as a basis. The integration of all these units, complexes, and systems of complexes, constitutes personality. The innate dispositions give instinctive and emotional dynamics to the whole, so that the predominance of certain dispositions determines the individuality personality. H. C. Warren, in "Psychology and the Central Nervous System" (20, 249), sets forth in detail

the advantages which come if and when we adopt the double-aspect hypothesis. But since the common link in the double-aspect theory is the neural impulse, it becomes, naturally, the object of study. Mental process, neural impulse and response form an unbroken series, toward any member or members of which we may set our faces. Since no one of the three partial attitudes affords a complete or even a satisfactory picture for purposes of explanation, we must extend psychology to include the whole list. Because experience and behavior are phenomena of organic creatures, therefore they fall within the purview of the same science. When we include neurological study, we have a trio which should give a complete picture of mental happenings. W. E. Hocking, in "The Dilemma in the Conception of Instinct, as Applied to Human Psychology" (1, 73), finds it necessary to discard instinct, as a term too loose to serve the needs of science. Both the strictly physiological and the vitalistic concepts fail to meet the needs of psychology; but the hypothesis of a motive in the form of appearance, a general physiological urge, which Hocking calls "the will to power" satisfies the requirements. J. W. Scott, in "Psychology and Idealistic Philosophy" (22, 170), sounds a similar note in his "power to live," which he believes may point to the path which idealism missed because it was unable to maintain relative values. Of like import, with differences of emphasis or form, are articles by P. Janet, "La tension psychologique, ses degrés, ses oscillations" (7, a, 1 and 209) and "Les oscillations de l'activité mentale" (24, 140); B. H. Bode, "Intelligence and Behavior" (22, 10); and R. B. Perry, "A Behavioristic View of Purpose" (22, 85). If we turn from these psychological and philosophical writers to the supporters of psychoanalysis and the psychiatrists, we find that they take their drives for granted; it has ceased to be a question whether mind is dynamic; they debate about the nature or origin of the drive, and not about its existence.

No one should be deceived by all this into the belief that it is anything other than an attempt to explain, to give value to life as we live it. Since the beginnings of history man has sought the ultimate in the form of a power or drive; he has always shown curiosity about the why rather than about the what. The present attempt to give respectability to empiricism finds its chief characteristics in the generalizing of the function and in the assignment to the drive, so far as may be, of a physiological origin.

The following books should receive mention as being of general interest: S. Paton, *Human Behavior*; J. Drever, *Psychology and Everyday Life*; B. A. W. Russell, *Analysis of Mind*; S. Smith and E. Guthrie, *Chapters in General Psychology* (Rev. Ed.); C. S. Myers, *Mind and Work*; F. Giese, *Psychologisches Wörterbuch*; F. Tracy, *Psychology of Adolescence*; C. Platt, *The Psychology of Thought and Feeling*; and R. Briffault, *Psyche's Lamp: A Revolution of Psychological Principles as Foundation of all Thought*. Likewise the following articles: E. Becker, "W. Köhler's physikalische Theorie der physiologischen Vorgänge die der Gestaltwahrnehmung zugrunde liegen" (31, b, 1); F. R. Bichowsky, "The Basic Assumption of Experimental Science" (22, 295); G. C. Field, "Faculty Psychology and Instinct Psychology" (17,

257) C. Long, "Psychological Adaptation" (8, a, 34); H. B. English, "In Aid of Introspection" (2, 404); J. C. Gregory, "A Comparison of Strong's Theory of Perception with Reid's" (23, 352); M. Picard, "The Unity of Consciousness" (22, 347); M. W. Calkins, "The Truly Psychological Behaviorism" (20, 1); G. B. Denton, "Early Psychological Theories of Herbert Spencer" (2, 5); G. Revault d'Allonnes, "Le mécanisme de la pensée" (24, 282); and F. J. E. Woodbridge, "Mind Discerned" (22, 33).

S. I. Franz in "Cerebral-Mental Relations" (20, 81), cites cases to show that there is no necessary one-to-one correlation between neural activity and mental states. A brain lesion at first reflects itself in the mental life, but there is no impairment of imagery, and complete recovery of the mental life is possible. M. Picard, in "Coordinate Character of Feeling and Cognition" (22, 288), after a review of the arguments and experimental results for and against the independent status of feeling as a mental element, concludes that it is a process coordinate with cognition. He accepts the doctrine of mixed feelings, despite results of P. T. Young (1919) to which he does not refer. H. Hartridge, in "A Vindication of the Resonance Hypothesis of Audition" (7, a, 277, b, 142), answers, in part by experiment and in part by analogy, some of the objections raised against the Helmholtz theory. He points out two phenomena of hearing which the displacement theory of Wrightson does not explain: the facts that very short intervals of silence come to experience as noises, and that a change by π in the phase of the tone produces a beat-effect.

E. G. Boring, in "The Stimulus-Error" (2, 449), reviews the arguments for and against the "quantity" objection to mental measurement, in connection with which the notion of "stimulus-error" had its origin. With the advent of the psychology of capacity a new point of view arose, a point of view which accepted that which the notion of "stimulus-error" implied, and so failed to recognize anything but a direct measure in terms of stimulus. This psychology of capacity did not seek to correlate or find a relation between mental and physical measurements, since for it the first term of the relation did not exist. It is doubtful if the position is sound even in the field of mental testing and of educational measurements; in true psychophysical investigations the use of the data of introspection is necessary even for a psychology of function. S. W. Fernberger, in "An Experimental Study of the Stimulus-Error" (13, 63), makes a direct experimental attack upon the problem of the stimulus-error. He gave instructions which, if carried out, would lead in one case to reports of relative magnitude or "quantity" of experience itself and in another to reports about the magnitude of the objective stimulus. The practiced *O* gave different values for the *DL* and very different values for the interval of uncertainty: a result which proves that under the different attitudes we do not measure the same thing.

We have from G. S. Brett the second and third volumes of his *History of Psychology, Ancient and Patristic*. The second volume covers the period of mediæval and early modern psychology and the third volume, modern psychology. H. C. Warren gives us a sympathetic *History of the Association Psychology*. For the most part, it

states the position of the different men in their own terms, without any very serious effort to show origins and relations. It is what C. R. Griffith, in "Some Neglected Aspects of a History of Psychology" (21, b, No. 3), calls static. Griffith enters a plea for a history which shall centre about primary and secondary themes, in order that the whole may appear as a history of connected growth and development. Wundt's autobiography, *Erlebtes und Erkanntes*, and Kuelpe's incomplete *Vorlesungen über Psychologie*, edited by K. Buehler, are reviewed by E. B. Titchener (2, 575) and R. M. Ogden (*Amer. Jour. Psychol.*, 33, 145). Wundt does not lay bare the motives which led him into psychology, or to the publication of the *Physiologische Psychologie*, or to the change of plan in the first edition of this work (see E. B. Titchener, 2, 596). The following notes of appreciation have appeared: "In Memory of Wilhelm Wundt" by His American Students (20, 153); "Wilhelm Wundt" by E. B. Titchener (2, 161); and "Unserem grossen Lehrer Wilhelm Wundt in unaussprechlicher Dankbarkeit zum Gedächtnis" by W. Wirth (4, a, 1).

SENSATION AND IMAGE. Last year we gave as the central problem in experimental work the phenomenological analysis of perception. Even then we might have predicted that such a programme would lead to a study of the constituent elements from the same point of view; for the work on perception showed gaps in our knowledge of the ultimate character of sensory and imaginal data, as well as inadequate knowledge of the variable dimensions of experience. The swing toward the study of elements shows in the trend of studies rather than in numbers. Another trend of equal or greater significance is the approximation of sensory and perceptual studies; it is difficult to place certain studies definitely in the one class or the other; which means that the elements are studied in integrated complexes, without however any lessening of experimental control. These trends are to be discerned in the report of studies which follows. W. Fuchs, in *Untersuchungen über das Sehen der Hemianopiker und Hemiamblyopiker. ii. Die totalisierende Gestaltauffassung* (31, a, 1), contributes the fifth paper to the Gelb-Goldstein series. Under certain conditions the subject had experiences of clear vision correlated with defective or injured parts of the retina. This central supplementation is not a matter of images or of residua or of attention, but it is a central *Gesamtgestaltprozess* of the same kind as that which fills in the blind spot, the fovea in twilight vision, and visual forms under certain conditions of observation. J. C. Flugel, in "A Minor Study of Nyctopsia" (7, a, 287), finds that there is no certain relation between visual acuity in daylight and visual acuity at night, and very little correlation between acuity when the differences of illumination are small if both are fairly low. L. W. Jones, in "A Method of Measuring Nyctopsia with some Results" (7, a, 299), describes an apparatus for testing nyctopsia after varying intervals of time. The results show very large individual differences in the amount of adaptation after any given interval, as well as very different rates after any interval; even the same individual varies markedly in the rate of adaptation as time goes on; the curve is irregular. The region of greatest sensitivity is 20° temporal to the fovea. E. Kaila, in *Eine*

neue Theorie des Aubert-Försterschen Phänomens (31, a, 193), shows that this phenomenon (that optical figures which are small and near are recognized over a larger portion of the field of vision than large and distant objects which subtend the same visual angle) is independent of accommodation and convergence. The key to the phenomenon lies in the fact that distant objects arouse more residue than near; hence there is mutual inhibition. The cutting-off of residue also explains the Koster phenomenon. G. Marsynski, in *Studien zur zentralen Transformation der Farben* (31, b, 45), argues that total or partial "transformation" is not identical with the phenomenological change in brightness when a given gray is lightened or darkened by the admixture of W or Bk or by the increase or decrease of total or partial illumination. Constancy of differential sensitivity appears only where transformation is present. A shadowed paper compared with an unshadowed appears darker under the subjective than under the objective attitude, but still lighter than under the reductive procedure. H. Henning, in *Ein optisches Hintereinander und Ineinander: Gemischte Farbenempfindungen* (31, a, 144), reports an experiment whose result is that of two colored areas which by a stereoscopic arrangement appear at different distances, yet on corresponding retinal areas, the nearer is a transparent surface. The seeing of two colored lines with corresponding areas and at identically the same place depends upon fusion of contours and degree of attention. A. Kirschmann, in *Der Metallglanz und die Farbe der Metalle* (4, b, 90), concludes that metallic lustre results from the reflection of light from successive layers of transparent particles which have a high index of refraction. So we have parallax of indirect vision for these lustres, and binocular parallax and parallax of movement for the surface lustres. F. Schumann, in a second paper on *Die Dimensionen des Raumes* (31, a, 254; for first paper see *Zeit. f. Psy.*, 85, 224), raises the question of the truly tridimensional nature of the plastic spatial impression. The glassy sensation and the fact that we can see two colors at different distances in the same visual direction seem to guarantee tridimensionality. In the field of audition H. G. Bishop, in "An Experimental Investigation of the Positive-After-Image in Audition" (2, 305), puts the findings of A. M. Mayer to a critical test. Results of various experiments give no evidence of a positive after-image like that found in vision. Tones have a characteristic modified ending which depends for its intensity upon the intensity of stimulus and for its insistence upon intensity and duration of stimulation. M. Tittel, in "Ueber Angleichung und Kontrast im Tongebeit" (4, b, 353), finds that assimilation occurs when the two tones are near together in the tonal scale; contrast when they are farther apart,—somewhat with the intervals of the 4th and 5th, but especially with intervals of more than an octave. The induction-effect, which is greater in the upper part of the scale, is a central factor. I. G. Campbell, in "Some Problems in Regard to Alimentary Sensitivity" (2, 26), made observations during a period of duodenal feeding upon the complexes of hunger, appetite, and fullness as well as upon thermal sensitivity. S. Tung, in "The Integration of Punitive Cold and Pressure" (2, 421),

reports that the integration of the qualities of cold and pressure gives an experience of wetness. R. S. Malmud, in "The Integration of Punctiform Warmth and Pressure" (2, 571), finds that the two qualities fuse under equal attention and with identical localization. No new quality or perception arises. A. Baron and M. Bentley, in "The Intensive Summation of Thermal Sensations" (21, b, No. 3), disprove the contention of Siebrand that thermal sensations are summated within the area stimulated. The results give no hint that sensory elements summate. The attitude of the observer is important. C. Brad-dock, in "An Experimental Study of Cutaneous Imagery" (2, 415), casts doubt upon the occurrence of images of warmth, of cold, and even of cutaneous pressure, except perhaps under special conditions. A. H. Sullivan, in "An Experimental Study of Kinæsthetic Imagery" (2, 54), makes out two kinds of kinæsthetic imagery, resident and projected. The resident images approximate single processes which differ from kinæsthetic sensations in general uniformity, simplicity, and lack of "body." They may be simple processes coordinate with sensation. The projected are complex, coordinate with perception. The two involve opposite attitudes on the part of the observer. Finally, we have six studies by E. R. Jaensch and his pupils on the general subject *Ueber die Vorstellungswelt der Jugendlichen und den Aufbau des intellektuellen Lebens*. In the first paper E. Gotthel, "Ueber das latente Sinnengedächtnis der Jugendlichen und seine Aufdeckung" (31, b, 73), concludes that an eidetic phase of development is perhaps normal, since tests made by way of the after-image and memory-image bring out rudiments of images of sense-memory where a direct test fails. The second, by E. R. and W. Jaensch, *Ueber die Verbreitung der eidetischen Anlage im Jugendalter* (31, b, 91), presents a statistical confirmation of the preceding study. In the third, by A. Grosser, *Ueber die Gründe des verschiedenen Verhaltens der einzelnen Gedächtnisstufen* (31, b, 97), many tests (mode of appearance of background, freedom from background, influence of rotating or uneven background, of a colored projection-surface, and of assimilation to objects of perception) indicate that as the memory series proceeds from after-image to images of sense-memory and thence to memory-images, the connection of the image with the object of perception, simultaneously presented, becomes weaker. The fourth paper, by B. Herwig *Ueber den inneren Farbensinn der Jugendlichen und seine Beziehung zur den allgemeinen Fragen des Lichtsinns* (31, b, 129), is a discussion of the nature and distribution of the image of sense-memory, its difference from the after-image, and the conditions of its appearance as positive or negative. Some sense-phenomena appear in an exaggerated and hence more accessible form in the image. The color-blindness of the peripheral retina may be due to induction rather than to anatomical deficiency. E. R. Jaensch in the fifth paper, *Ueber Kontrast im optischen Anschauungsbild* (31, b, 211), finds that contrast-effects are enhanced in the image. The experimental results of B. Herwig and E. R. Jaensch, *Ueber Mischung von objektiv dargebotenen Farben mit Farben des Anschauungsbildes* (31, b, 217: the sixth paper of the series), prove that both mixture and rivalry occur, but rivalry less often.

The facts of mixture confirm the status of the image.

PERCEPTION. The studies of perception show the same tendency toward phenomenological description and an intimate correlation with conditions that we have previously noted. The analysis of "The Illusory Perception of Movement on the Skin" (2, 472) by A. K. Whitchurch is typical. The perception of movement comes from the successive stimulation of two adjacent pressure-spots. The interval between stimuli determines the perception to a greater degree than do other conditions. The existential correlate appears to be an integration of quality, duration, and cutaneous extent. E. R. Jaensch and F. Reich, in *Ueber die Lokalisation im Seh-raum* (31, a, 278), prove by experiments that the region of attention determines the localization of images of sense-memory whether fixation remains steady or the point of regard shifts. An experiment parallel to the fundamental experiment of Hering-Hillebrand on horopter-deviation showed, with images, all the phenomena observable with actual threads. The observers of F. Hermann, *Einfluss des Kontrastes auf den Sukzessivvergleich innerhalb eines festen Reizsystems bei Augenmassversuchen* (4, b, 1), when given lines for comparison, all of which were of about equal length, formed an idea of mean or average length which was less than the actual average length and which served in part as the basis for judging. This idea of mean length affected the first more than the second stimulus, and affected deviations above the median more than those below it. J. E. Lips, in *Die gleichzeitige Vergleichung Zweier Strecken mit einer dritten nach dem Augenmass: zum Drei-Reize-Problem in der Psychophysik* (4, a, 267), finds that the double comparison of the total extent of two vertical lines shown simultaneously with a third line shown in succession gives more accurate results than does the single judgment. O. Klemm, in *Untersuchungen über die Lokalisation von Schall-reizen: 4. Ueber den Einfluss des binauralen Zeitunterschiedes auf die Lokalisation* (4, a, 117), leads sounds separately to the two ears, and by the use of the Helmholtz pendulum controls their time relations. He concludes that the time relations, which varied down to .002 sigma, condition the perception of localization. C. A. Ruckmick, in "Experiments in Sound Localization" (21, b, No. 3), finds that difference in intensity conditions the perception. C. C. Pratt, in "Some Qualitative Aspects of Bitonal Complexes" (2, 490) attacks the problem of fusion descriptively. T. Lehmann, in "Zur Psychologie des Vergleichs kurzer Zeiten" (4, b, 309), obtains results which confirm Katz in regard to the unimembral judgment; it comes with a highly stable sensory "set." K. M. Dallenbach, in "Subjective Perceptions" (13, 143), finds that subjective perceptions fall into the same classes as those objectively determined. W. A. Thalman, in "The After-Effect of Seen Movement when the Whole Visual Field is Filled by a Moving Stimulus" (2, 429), notes an after-effect depending on duration of stimulus. Two studies deal with poetry: E. W. Scripture, "The Nature of Verse" (7, a, 225), and E. Scherrer, "Das Problem der anschaulichen Gestaltung in der Lyrik" (4, a, 147).

C. Comstock, "On the Relevancy of Imagery to the Process of Thought" (2, 196), could find

no image which was irrelevant. F. C. Bartlett, "The Function of Images" (7, a, 320), concludes that images aid in the resolution of some deficiency either of process or of behavior.

COMPLEX STATES: EMOTION. It is evident that the time is not ripe for the investigation of the more complex mental states; not till the phenomenological description of the simpler integrations has gone farther will the highly complex formations yield to analysis. J. R. Kantor, in, "An Attempt Toward a Naturalistic Description of Emotion" (20, 19; 120), describes the mechanism of the emotions in terms of the organismic concept. An emotion arises when in the face of some situation no organized response system comes to function. F. T. Russell, in "A Poet's Portrayal of Emotion" (20, 222), thinks that a poet such as Browning has insight into the emotions from both the scientific and the artistic points of view, and so forms a common meeting place for the two classes of workers.

ACTION. The results of E. L. Gatewood, "Individual Differences in Finger Reaction" (21, a, No. 4), show that the speed and accuracy of reaction differ with individuals under the conditions of his experiment. The best records for both speed and accuracy come with the use of one finger of each hand; the worst, with two fingers of the left hand. F. L. Wells, C. M. Kelley, and G. Murphy, in "Comparative Simple Reactions to Light and Sound" (13, 57) show that the relation between reaction-time to sound and light depends on the intensity of the stimuli compared and upon the pre-stimulus time. The same authors, in "Effects Stimulating Fatigue in Simple Reaction" (13, 137), conclude that the increase in reaction-time during a 40 min. period arises from the monotonous nature of the task and not from fatigue. W. Schilling, in "The Effect of Caffein and Acetaulid on Simple Reaction-Time" (20, 72), finds that both drugs tend to retard and to make more irregular the reaction-times. I. Hermann, in "Ueber formale Wahl-tendenzen" (31, b, 345), presents experimental results which show that the subject owing to the tendencies of conservation and of stability, tends to choose the middle member of a series.

MEMORY. R. H. Crosland, in "A Qualitative Analysis of the Process of Forgetting" (21, a, No. 2), presents cross-sections of the memory consciousness for different kinds of material. They show characteristic changes, which the author accounts for by hypothetical mechanisms which savor of Freud. K. Winzen, in *Die Abhängigkeit der paarweisen Assoziation von der Stellung des besser haftenden Glieder* (31, a, 236), finds that the more familiar or more insistent member of a pair of ideas to be associated should come first. This is contrary to the usual practice with vocabularies. W. W. Smith in three articles, "Experiments on Memory and Affective Tone" (7, a, 236); "Some Properties of Complex Indicators" (8, a, 281); and "The Relation between Complex Indicators and the Form of the Association" (8, a, 297), proves that the affective tone of an idea may be negative or positive, may shorten or lengthen the association time. Of the indicators the psychogalvanic is best to detect tone; the memory test, to indicate the color of the tone. Inner associations are more strongly negatively toned. C. L. Hull and L. S. Lugoff in, "Complex Signs in Diagnostic Free Association" (13, 111), make a statis-

tical study of eight indicators. Two are more significant than one if they fall on the same reaction. H. Lundholm has a paper on "The Affective Tone of Lines: Experimental Researches" (20, 43); and E. Bullough reviews "Recent Work in Experimental Aesthetics" (7, b, 76).

APPLIED PSYCHOLOGY: EDUCATION. L. M. Terman, in "The Status of Applied Psychology in the United States" (3, 1), believes it a good omen that somewhat more than half the members of the American Psychological Association, who carry on research, devote themselves to problems in the applied field. Germany is perhaps the only country in the world to-day of which this statement is not true. The fact may signify either that most persons by temperament turn to the practical or that our colleges, the centres of training, fail to develop in their students the true spirit of research.

We note some studies which deal specifically with education. L. A. Peckstein, in "Massed versus Distributed Effort in Learning" (12, 92), finds as in his previous studies, that motor problems are learned most easily, in shortest time and with fewest errors if learned in small, fairly easy units by the massed method, and if then these parts are linked together by the massed method. S. D. M. Austin, in "A Study in Logical Memory" (2, 370), finds on the contrary that for retention divided repetitions are more effective than cumulative or massed presentations. The curve of forgetting for logical material is the same as that given by Ebbinghaus for nonsense syllables. J. W. Barton, in "Smaller vs. Larger Units in Learning to Typewrite" (12, 465), draws inferences of general pedagogical import from the result that students learned to write more rapidly, and in shorter time if the units were large from the beginning. J. J. O'Brien, "A Qualitative Investigation of the Effects of Mode of Presentation upon the Process of Learning" (2, 249), shows that recall is not necessarily in terms of the imagery of the presentation. Vocimotor imagery is the one indispensable mode, especially for the earlier stages of learning. Manu-motor imagery aids neither learning nor retention. The results confirm the laws of association so far as applicable. Many other studies undertake the analysis of some particular subject. The titles of the following indicate their general nature: J. R. Thompson, "The Interference Factors in Mental Processes; An Experiment in Correlation and Transfer" (13, 13); F. A. C. Perrin, "Experimental Study of Motor Ability" (12, 24); C. R. Lavin, "A Preliminary Study of the Reproduction of Hand Movements" (7, b, 47); E. L. Thorndike, "The Constitution of Arithmetical Abilities" (12, 14); "The Psychology of Drill in Arithmetic" (12, 183); E. J. Ashbaugh, "Measurement of Language: What is Measured and its Significance" (11, 34); L. W. and S. L. Pressey, "A Critical Study of the Concept of Silent Reading Ability" (12, 25); F. J. Hosc, "Empirical Studies in School Reading" (Columbia Univ. Contr. to Ed., No. 114); G. T. Buswell, "The Relation between Eye-Perception and Voice Response in Reading" (12, 217); H. J. Mulford, "The Child Mind" (2, 179); G. T. Johnson, "A Survey of the Physiology of Cerebration" (1, 136); M. E. Wells, "A Project Curriculum"; R. Pintner and H. Marshall, "A Combined Mental Educational Survey" (12, 32). We note also the following

books: L. A. Averill, *Psychology for Normal Schools*; M. V. O'Shea, *Mental Development and Education*; E. Claparède, *Psychologie de l'enfant et pédagogie expérimentale*; G. S. Hall and His Students, *Aspects of Child Life and Education*; W. H. Pyle, *The Psychology of Learning*; J. A. O'Brien, *Silent Reading*; J. H. Snowden, *Meaning of Education*; J. C. M. Garnett, *Education and World Citizenship*; J. L. Stockton, *The Definition of Intelligence in Relation to Modern Methods of Mental Measurement*.

TESTS. The making of tests is not at an end, but it is abated. The creative impulse finds its outlet in the application of the test method to educational, social, and industrial problems (see Pressey, 2, 354). The intelligence score as such is of little value; its importance lies in its significance for life. But it would be a mistake to believe that the interest in the tests of mentality for their own sake is less strong than heretofore. There is yet a goodly body of workers who feel keenly the problems which intelligence, as such, sets for the investigator. To realize this we need only note the names and the attitude of the men who took part in the "Symposium" (12, 123, 195, 271) on intelligence; the list includes E. L. Thorndike, L. M. Terman, F. N. Freeman, S. S. Colvin, B. Pintner, B. Ruml, S. L. Pressey, V. A. C. Hinmon, J. Peterson, L. L. Thurstone, H. Woodrow, M. E. Haggerty, and B. R. Buckingham. There is evidence in the proposed definitions of a more practical, less abstract, conception of intelligence. Of a similar trend are the following: S. D. Porteus, "New Definition of Feeble-mindedness" (29, 7); E. L. Thorndike, "On the Organization of Intelligence" (20, 141); P. B. Ballard, "The Limit of the Growth of Intelligence" (7, b, 123); and S. Naccarati, "The Morphological Aspect of Intelligence" (5, No. 45). One aspect of the problem which has received special consideration is the form of the curve for the growth of intelligence. According to F. N. Freeman, "The Interpretation and Application of the Intelligence Quotient" (12, 3), the norms from point-scales indicate that mental growth follows a uniform rate, and that neither of the two current assumptions—the logarithmic character of the growth curve and the divergence of the curves with advancing years—is valid. Whatever it may be, the exact nature of the curve of mental growth has yet to be determined. At any rate, the IQ does not apply to tests other than the Binet. L. M. Terman, in "Mental Growth and the IQ" (12, 325; 341), replies with a review of the work of Doll, Wallin, Mateer, and Freeman, wherein he disposes of the first three on the ground of errors committed. The objections of Freeman cannot be settled offhand. J. Peterson, in "The Growth of Intelligence and the Intelligence Quotient" (12, 148), thinks that the contradiction (that the curves of growth of intelligence diverge and slow up with advancing years) asserted by Freeman rests on an unwarranted assumption; the assumption that the test scores are the growth curve, whereas time and perhaps many other factors require consideration. Freeman replies (12, 135) that we simply have not the data or the insight to overcome the difficulty. H. Rugg and C. Colloton, in "Constancy of the Stanford-Binet IQ as Shown by Retests" (12, 315), review the results of eight investigators and conclude

in favor of the prognostic value of the IQ. F. Kuhlmann, in "The Results of Repeated Mental Re-examination of 639 Feeble-minded over a Period of Ten Years" (3, 197), finds that mental age increases at a rate proportional to the final status. Those of the lower mental levels show loss in IQ more frequently than those of the higher; but with increase of age there is a decrease in IQ whatever the mental level, and here the decrease is greatest in amount for the higher mental levels. Other studies are: J. E. W. Wallin, "The Results of Retests by Means of the Binet Scale" (12, 392); L. E. Poull, "Constancy of the IQ in Mental Defectives According to the Stanford Revision of the Binet Tests" (12, 392); and S. C. Garrison, "Fluctuations of Intelligence Quotient" (27, 647). A. S. Otis and H. E. Knollin, in "The Reliability of the Binet Scale and of Pedagogical Scales" (11, 121), give formulae with their derivation for testing the reliability serial scores. The following general articles have appeared: B. Ruml, "Reconstruction in Mental Tests" (22, 181), in which the writer upholds the view that mental testing is a descriptive and not a technical science; T. L. Kelley and L. M. Terman, "Dr. Ruml's Criticism of Mental Tests" (22, 459), a reply to previous criticism; R. Fraumeni and F. B. Knight, "Criteria to Employ in Choice of Tests" (12, 408); M. M. Fairgrieve, "A Mass Test with Mr. Cyril Burt's Intelligence Questions" (13, 27); C. F. Hansen and M. J. Ream, "The Predictive Value of Short Intelligence Tests" (3, 184); S. L. Pressey, "The Problem of the Unselected Group in the Standardization of Tests" (3, 64); C. Fox, "A New Method of Marking Group Tests" (7, b, 181); G. M. Whipple, "The National Intelligence Tests" (11, 16). The following represent special aspects of testing. A. F. Bronner, in "Apperceptive Abilities" (20, 270), believes that there is a special, unique apperceptive ability and proposes tests. S. L. Pressey, in "A Group Scale for Investigating the Emotions" (1, 55), presents a test of 600 items to be done in 25 minutes. B. Muscio, in "Is a Fatigue Test Possible" (7, b, 31), argues that nonperformance tests offer the only possibility for a test of fatigue. A. A. Roback, in "Subjective vs. Objective Tests" (12, 439), finds that objective tests secure ease and quickness of scoring to the disadvantage of the more intelligent subject. G. M. Ruch, in "A Preliminary Study of the Correlations between Estimates of Volitional Traits and the Results from the Downey 'Will Profile'" (3, 159), discovers no correlation. W. Healy, in "Pictorial Test II" (3, 225), gives directions, scores, and a general discussion of the test. J. C. Bell, in "Group Tests of Intelligence: An Annotated List" (12, 103), gives a list of 30 group tests of recent origin. T. C. Kelley (Stanford Univ. Pub., Spec. Mon. No. 1) presents "A Chart to Facilitate the Calculation of Partial Coefficients of Correlation and Regression Equations."

The following show the extent to which tests serve the ends of education and something of the nature and scope of the problems attached: J. C. Reamer, "Mental and Educational Measurements of the Deaf" (21, a, No. 3); M. D. Lindsay and R. S. Gamsby, "Where Test Scores and Teacher's Marks Disagree" (28, 679); R. H. Bracewell, "The Freeman-Rugg General Intelligence Tests as an Aid to Economy in School Admini-

tration" (28, 460); A. I. Gates, "An Experimental and Statistical Study of Reading and Reading Tests" (12, 303; 378; 445); S. L. Pressey, "The Influence of Color upon Mental and Motor Efficiency" (2, 326); H. Davis, "Army Alpha and Student's Grades, Illustrating the Value of the Regression Equation" (27, 223); J. E. DeCamp, "Studies in Mental Tests" (22, 254); L. L. Thurstone, "A Cycle-Omnibus Intelligence Test for College Students" (11, 265); A. I. Gates, "The True-False Test as a Measure of Achievement in College Courses" (12, 276); S. S. Colvin, "The Use of Intelligence Tests" (10, 134); S. S. Colvin, "Educational Guidance and Tests in College" (3, 32); W. M. Proctor, "Psychological Tests and Guidance of High School Pupils" (Jou. Ed. Res. Mon. No. 1); V. A. Bird and L. A. Peckstein, "General Intelligence, Machine Shop Work and Educational Guidance in the Junior High School" (28, 782); J. C. and J. L. Almack, "Gifted Pupils in the High School" (27, 227); I. J. Bright, "The Intelligence Examination for High School Freshmen" (11, 44); C. E. and G. C. Myers, "Group Mental Testing in Altoona, Pa." (27, 624); C. F. and L. M. Chassell, "A Survey of the Three First Grades of the Horace Mann School by Means of Psychological Tests and Teacher's Estimates and a Statistical Evaluation of the Measures Employed" (12, 72; 243); P. L. Gray and R. E. Marsden, "An Application of Intelligence Tests" (13, 33); E. J. Pratt, "The Application of the Binet-Simon Tests to a Toronto Public School" (9, 95); R. Pintner and H. Marshall, "Results of the Combined Mental-Educational Survey Tests" (12, 82); A. G. Morphy and W. D. Tait, "Mental Hygiene Survey of Montreal Protestant Schools" (9, 49); C. Fordyce, "Intelligence Tests in Classifying Children in the Elementary Schools" (11, 40); G. H. Thomson, "A Rating Scale for Teaching Ability in Students" (13, 75); C. A. Wagner, "The Construction of a Teachers Rating Scale" (El. Sc. Jr., 21, 361); S. S. Brooks, "Measuring the Progress of Pupils by Means of Standardized Tests" (11, 161); J. B. Sears, "The Measurement of Teaching Efficiency" (11, 81). We mention the following books: H. R. Douglass, *The Derivation and Standardization of a Series of Diagnostic Tests for the Fundamentals of First Year Algebra*; W. S. Monroe, *Report of Bureau of Educational Research, Division of Educational Tests*; A. Gesell, *Exceptional Children and Public School Policy*; J. A. Bades, *The First Practical Steps in Selecting Gifted Children in a Large City School*; W. A. McCall, *How to Measure Education*; C. H. Town, *Analytic Study of a Group of Five- and Six-Year-Old Children*; B. P. Ballard, *Mental Tests*; M. R. Trabue and F. P. Stockbridge, *Measure Your Mind*.

SOCIAL. R. H. Gault, in "The Standpoint of Social Psychology" (1, 41), insists that social and individual psychology, as such, are the same; there are no minds or processes which are unique for social psychology; they all belong to individuals. If we take up a particular attitude toward the psychology of the individual, which has as its stimulus certain conditions, then we have social psychology. In general, when the stimulus is other members of society, and the response or significance leads back toward or reacts upon other members, the conditions fulfill the requirements. In fact, here, as in all forms of

applied work, there are two possible points of departure: the one emphasizes the mental side, the other lays stress upon the reactions, as a kind of social behaviorism.

As we shall see presently, the test method has invaded the social field as it has the educational. The following articles and books deal with various phases of social psychology: L. L. Bernard, in "The Misuse of Instinct in the Social Sciences" (20, 96), holds that the very names of the instincts imply both function and value, and hence are interpretations rather than facts. Environment, as social contact and social control, plays a large part in shaping the social creature. A. B. Wolfe, in "The Motivation of Radicalism" (20, 280), argues that, at bottom, the end term which drives all innovators may be an instinctive urge, a kind of pugnacious temperament, but that there is in addition a broad, intensive social sympathy. J. C. Flügel, "On the Biological Basis of Sexual Repression and its Sociological Significance" (8, a, 225), declares that the limited amount of human energy may be diverted to the ends of individuation or to those of genesis. As the race advances in civilization, individuation gains over genesis, and thus sets up a conflict with consequent repression. C. Theodoridis, in "Sexuelles Fühlen und Werten" (4, a, 1), argues that sexual values form the basis of moral percepts and of the social structure. For S. C. Pepper, "The Law of Habituation" (20, 61), changes in taste are not a matter of imitation; our likes and dislikes depend upon chains of connected dispositions or affective sequences which function as a whole. A change, brought about by stimulation, of any member of the group brings changes in the entire affective sequence, or a change in taste. T. H. Pear, in "The Intellectual Respectability of Muscular Skill" (7, b, 161), and J. L. Stenquist, in "The Case for the Low IQ" (11, 241), enter a plea for a better social rating of the person who has muscular "intelligence" and develops it, even if he does not possess high intelligence as rated by an intelligence test. Other articles are: A. W. Stearns and J. V. Chapman, "The Kinds of Men in Prison" (1, 335); H. Rugg, "Is the Rating of Human Character Practicable" (12, 425); S. D. Porteus, "The Social Rating Scale" (29, 33); F. H. and G. W. Allport, "Personality Traits, Their Classification and Measurement" (1, b, 6); E. R. Spaulding, "The Role of Personality Development in the Reconstruction of the Delinquent" (1, b, 97); W. T. Root, "A Socio-Psychological Study of Fifty-three Super-Normal Children" (21, a, No. 4); W. H. Burnham, "Sex Differences in Mental Ability" (10, 273); A. H. Arlitt, "On the Need for Caution in Establishing Race Norms" (3, 179); K. T. Yeung, "The Intelligence of Chinese Children in San Francisco and Vicinity" (3, 267); A. J. Dauphinee, "Vancouver's Sub-Normal Problem" (9, 117); "Novia Scotia Survey" (9, 1); W. K. Wright, "McDougall's Social Psychology in the Light of Recent Discussion" (22, 141). We note the following books: J. Dewey, *Human Nature and Conduct*; B. T. Baldwin, *The Physical Growth of Children from Birth to Maturity*; T. W. Galloway, *The Sex Factor in Human Life*, and *The Father and His Boy*; E. G. Conklin, *Direction of Human Evolution*. The following works have to do with criminal psychology: E. A. Doll, "Criminal Psychology" (29, 17); H. S. Langfeld, "Psychophysical Symp-

toms of Deception" (1, a, 319); H. E. Burt, "The Inspiration-Expiration Ratio During Truth and Falsehood" (13, 1); R. Rudlowski, "Kasuis-tischer Beitrag zur Psychologie der Aussage" (4, b, 270); F. Grossart, "Das tachistoskopische Verlesen unter besonderer Berücksichtigung des Einflusses von Gefühlen und der Frage des objektiven und subjektiven Types" (4, b, 121); F. Averling and H. L. Hargreaves, "Suggestibility with and without Prestige in Children" (7, 53).

INDUSTRIAL. The application of tests to the problems of industry goes on apace. We have the following to list: F. Watts, "The Construction of Tests for the Discovery of Vocational Fitness" (3, 240); M. S. Viteles, "Tests in Industry" (3, 57); E. O. Bregman, "A Study in Industrial Psychology: Tests for Special Abilities" (3, 127); B. Muscio, "Feeling Tone in Industry" (7, b, 150); E. Wallenstein, "An Attempt at Vocational Testing" (10, 392); H. D. Kitson, "Minor Studies in the Psychology of Advertising" (3, 5); M. Freyd, "A Test Series for Journalistic Aptitude" (3, 46); M. A. Bills, "Methods for the Selection of Comptometer Operators" (3, 275). The following list of books testifies to the interest that now attaches to the problems of industry: J. Drever, *Psychology of Industry*; F. Watts, *Introduction to the Psychological Problems of Industry*; J. C. Chapman, *Trade Tests*; E. L. Munson, *Management of Men*; H. D. Kitson, *The Mind of the Buyer*; L. C. Andrews, *Military Man Power: Psychology as Applied to the Training of Men and the Increase of Their Effectiveness*; A. Felek, *The Musician's Mind*; A. C. Higgins, *The Psychology of Nursing*.

PSYCHOLOGY OF THE ABNORMAL; PSYCHOTHERAPEUTICS. The psychology of the school of Zurich dominates every aspect of abnormal psychology. There are dissenting voices, but they receive scant heed. The revolt against the extreme sexuality of Freud spreads; even Freud now admits that in the case of the war neuroses others than the Oedipus-complex or the libido may have supplied the drive. Some see in the activities of psychoanalytic "quacks" a great evil turned loose upon the world; complexes are made to grow where there were no complexes before. More and more of the medical profession accept and practice psychotherapy; and in England as well as in America psychoanalysis is the vogue as spiritualism was a short time ago. S. Freud, in "One of the Difficulties of Psychoanalysis" (16, 3), says that the difficulty in question is attitudinal rather than intellectual, and attributes it to the difference in temperament or attitude of the man of the West and the man of the East. E. Jones, in "Recent Advances in Psychoanalysis" (8, a, 49), finds four points of advance: the use of the rule of "abstinence"; the addition of the "oral" or cannibalistic stage to character types; the "discovery" of narcissism; and the advance in metapsychology. It is in the latter subject that Freud's true interest lies; he desires to know the mechanism, but above all to know the power that drives it. In this country, at least, the point of view of Jung seems to be more acceptable than that of Freud. The studies of case histories is voluminous; we list some of the more general articles. W. S. Inman, in "Emotion and Eye Strain" (8, b, 47), finds that most trouble with the eyes is the effect of emotional disturbance. R. Reed, in "Some Notes on the Stammering Problem" (1, b, 161), finds the

usual devices for the treatment of stammering worse than useless, for stammering is due to the presence of some infantile reaction; the subject has the inferiority complex owing to domination by some other member of the family. G. Humphrey, in "Education and Freudianism: The Freudian Mechanisms and the Conditioned Reflex" (1, a, 350) and "The Child's Unconscious Mind" (1, a, 387), shows that the phenomena included under the different mechanisms find a better explanation in the conditioned reflex. The mechanisms, when applied to education, break down as means of explanation. W. Brown, C. S. Myers, and W. McDougall, in "The Revival of Emotional Memories and Its Therapeutic Value" (8, a, 16), discuss the question whether the emotions become suppressed and remain active as entities, so that abreaction frees the mind, or whether the phenomenon is one of dissociation of ideas and affection. J. H. Cooper, in "The Psychoanalytical Method Applied to the Study of Repression" (1, b, 144), asserts that the repression force is the sexual gratification obtained by repressing another sexual desire, and usually dates from early childhood. L. H. Horton, in "What Drives the Dream Mechanism" (1, a, 224) and "The Mechanistic Features in the Dream Process" (1, b, 169), finds no need for dynamics. The disposition or "set" of the nervous system makes for the phantasmagorical nature of the product. K. Dunlap, in "Sleep and Dreams" (1, b, 197), argues that a study of the symptoms of sleep leads to the prophecy and validation of dreams. The integrated activity of the nervous system makes for less varied associations. Other articles are: W. Brown, "Criticism of Present-Day Psychoanalysis" (16, 17); C. S. Read, "Homosexuality" (16, 8); W. Rees-Thomas, "Sadism and Masochism" (16, 12); W. H. B. Stoddart, "A Brief Résumé of Freud's Psychology" (16, 1); H. H. Goddard, "The Subnormal Mind versus the Abnormal" (1, b, 47); T. W. Mitchell, "Psychology and the Unconscious" (8, a, 327); C. Burt, "The Dreams and Day Dreams of a Delinquent Girl" (13, 1, 66); C. Moxon, "Mystical Ecstasy and Hysterical Dream States" (1, a, 329); W. H. R. Rivers, "Affect in the Dream" (7, b, 113); W. L. Brown, "The Influence of the Endocrines in the Psychoneuroses" (8, b, 1); W. M. Wheeler, "On Instincts" (1, a, 295); P. Janet, "The Fear of Action" (1, b, 150); L. J. Walker, "The Psychology of the Spiritual Exercises" (14, 401). The International Psychoanalytic Press began, during the year, the publication of *The International Psycho-Analytical Library*, of which we have the first volumes. The first is *Addresses on Psychoanalysis* by J. J. Putnam with an introduction by S. Freud; the second is *Psychoanalysis and the War Neuroses* by S. Ferenczi, K. Abraham, E. Simmel, and E. Jones. Other books are: C. B. Burr, *Practical Psychology and Psychiatry* (5th Ed.); M. Prince, *Unconscious, the Fundamentals of Human Personality, Normal and Abnormal*; C. Baudouin, *Suggestion and Autosuggestion* (trans. by E. and C. Paul); W. Brown, *Psychology and Psychotherapy*; A. C. Buckley, *The Basis of Psychiatry*; C. E. Long, *Collected Papers on the Psychology of Phantasy*; J. F. W. Howley, *Psychology and Mystical Experience*; K. Dunlap, *Mysticism, Freudianism and Scientific Psychology*; J. L. des Bancelles, *Introduction à la psychologie, l'instinct et l'émotion*;

J. Varendonck, *The Psychology of Day Dreams*; E. Kraepelin, *Manic-Depressive Insanity and Paranoia* (trans. by R. M. Barclay); J. Ralph, *The Psychology of Nervous Ailments. The Quimby Manuscripts*, edited by H. W. Dresser, deserve special mention because of their bearing on the history of mental healing.

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PUBLIC SCHOOLS. See **EDUCATION**.

PUEBLO FLOOD. See **FLOODS AND FLOODS PROTECTION**.

PUGILISM. See **BOXING**.

PULITZER TROPHY RACE. See **AERONAUTICS**.

PULP. See **PAPER**.

PULP WOOD. See **FORESTRY**.

PYNE, MOSES TAYLOR. Lawyer and philanthropist, died, April 22. He was born in New York City, Dec. 21, 1855, graduated at Princeton in 1877, and practiced law but after a few years devoted himself to the management of his large financial interests. He was president or director of many important companies, including railroads, banks, insurance companies, etc., but is best known for his work at Princeton University, of which he was a trustee for over thirty years, building two dormitories at his own cost and contributing to it large sums of which he kept no account.

Q

QUAKERS. See **FRIENDS**.

QUEBEC. A province of Canada, extending from Ontario to the northern border of the United States and New Brunswick, and northward to the Hudson Strait, including most of the Labrador peninsula. Capital, Quebec. Area, 706,834 square miles, including 15,969 square miles of water. Population (1911), 2,003,232, of whom 1,605,339 were of French origin, but the above figures do not include Ungava, annexed in 1912, with an area of 351,873 square miles. In 1917 the population of the whole province was estimated at 2,380,042. Chief cities with their populations in 1921: Montreal, 607,063 (including Maisonneuve, etc.) as compared with 489,880 in 1911; Quebec, 103,000 (1917); Hull, 23,867; Three Rivers, 22,317; Sherbrooke, 22,097. It is under a lieutenant-governor who acts through a responsible ministry; a legislative council of 24 members, appointed for life; and a legislative assembly of 81 members, elected for five years. At the beginning of 1921 the legislature was divided among political groups as follows: Liberals, 72; Conservatives, 7; Labor, 2. Lieutenant-Governor at the beginning of 1921, Sir Charles Fitzpatrick; Prime Minister and Attorney-General, L. A. Taschereau. See **CANADA**.

QUEENSLAND. A state of the Commonwealth of Australia, situated to the north of New South Wales, and next to the largest of the Australian states. Area, estimated at 670,500 square miles; population (1911), 605,813; estimated, June 30, 1920, 737,085, exclusive of aborigines, whose number has been estimated at 20,000. The immigration in 1919 was 79,005; and the emigration, 58,362. The movement of population in 1919 was as follows: Births, 18,699; deaths, 8860; marriages, 5431. Capital, Brisbane, with a population estimated in 1919 at 189,576. Executive power is in a governor who acts through

a responsible ministry; and legislative power, in a legislative council of 61 members, nominated by the Crown for life, and a legislative assembly of 72 members, elected for three years by male and female adult suffrage. Governor at the beginning of 1921, Lieutenant-Colonel Sir Mathew Nathan; Prime Minister, E. G. Theodore.

QUICKSILVER. Preliminary figures showing the production of quicksilver in the United States in 1921, compiled by the United States Geological Survey, gave a total of 6339 flasks, as compared with 13,392 flasks in 1920. Of this output 3094 flasks were credited to California, 3144 to Texas, 100 to Nevada, and 1 to Idaho. So far as could be learned, Oregon produced no quicksilver in 1921. Never before had the quicksilver mining industry in the United States sunk to so low an ebb. The first recorded annual production was 7723 flasks, in 1850, and from that year to 1920, inclusive, the annual output was 10,000 flasks or more—in fact in only five years was it less than 20,000 flasks. In 1859 it was 13,000 flasks; in 1860, 10,000; in 1908, 19,750; in 1914, 16,548; and in 1920, 13,392. The maximum output, that of 1877, was 79,395 flasks. The output in 1921 was thus the smallest on record. The average price in 1921, although of course much lower than that for the years during and immediately after the war, nevertheless compared favorably with pre-war prices. The average price during the 10 years from 1904 to 1913, inclusive, was \$42.32, or \$5.10 per flask lower than the average in 1921. The cost of production, however, had not declined so rapidly as the price, and no large bodies of ore are now known that are comparable in tenor to those that were exploited when quicksilver mining in the United States could be considered a flourishing industry.

QUINIDINE. See **HEART DISEASE**.

R

RACING. Morrish, a two-year-old, owned by Benjamin Block, proved the sensation of the year in the American racing world. This colt was the greatest money-winner of 1921, the purses he captured being valued at more than \$115,000, and he also had the satisfaction of triumphing in all the important events in which he was entered. Among the three-year-olds Grey Lag, owned by Harry F. Sinclair, stood out most prominently with winnings of more than \$60,000. Other leading horses of the year were Charles A. Stoneham's Yellow Hand and Willis S. Kilmer's Exterminator. B. Marinelli, E. Sande, and L. Fator were the most successful jockeys.

The winners of the more important American turf fixtures in the United States during 1921 were:

Brooklyn Handicap, Grey Lag; Saratoga Handicap, Yellow Hand; Suburban Handicap, Audacious; Saratoga Cup, Exterminator; Futurity, Bunting; Latonia Derby, Brother Batch; Kentucky Derby, Behave Yourself; Brooklyn Derby (Dwyer Stakes), Grey Lag; Metropolitan Handicap, Mad Hatter; Preakness Stakes, Broomspun.

The English Derby was won by Humorist, owned by J. B. Joel, and the Grand Prix de Paris by Kizil Kourgan, owned by M. E. de St. Alary.

The principal achievement of the year in trotting fell to the lot of Peter Manning, a gelding owned by I. W. Gleason. This remarkable horse covered a mile against time at Lexington, Ky., on October 6 in 1:57 $\frac{3}{4}$, setting a new world's record. The Grand Circuit season comprised 319 races, the prize money amounting to nearly \$600,000. The largest individual winner was Jeannette Rankin with Grayworthy a close second, \$28,000 and \$25,000, respectively. The leading driver was the veteran T. W. Murphy. Single G. outclassed all rivals of the year in pacing.

RACQUETS and COURT TENNIS. Clarence C. Pell for the second year in succession won the national amateur racquet championship of the United States, and, teamed with S. G. Mortimer, also took the doubles title. In addition Pell in a match played at Montreal defeated H. Dickson, thereby gaining the Canadian championship.

Jay Gould was again the outstanding figure in court tennis, capturing the open championship through his victory over Jack Soutar and the national honors by defeating C. S. Cutting. In squash Gould was not so successful, losing the title match to Fillmore Van S. Hyde. The Canadian squash title went to C. C. Peabody.

RADCLIFFE COLLEGE. A non-sectarian institution for the higher learning for the education of women, at Cambridge, Mass.; founded in 1879. The enrollment for the fall of 1921 was 628. The faculty numbered 133 Harvard professors and instructors. The library contained 47,000 volumes. President, LeBaron Russell Briggs, LL.D., Litt.D.

RADER, F. E. See **NECROLOGY.**

RADIO FOG SIGNALS. See **LIGHTHOUSES.**

RADIO-TELEGRAPHY AND TELEPHONY.

Radio-telegraphy made steady progress as an international medium of communication. The increased power and range of stations in the United States and other countries enabled more prompt and dependable communication to be obtained, and as a result, the rapid exchange of news was facilitated and cable messages were not so subject to delay as formerly. The new radio station at Rocky Point, Long Island, New York, mentioned in the 1920 YEAR BOOK (see **WIRELESS TELEGRAPHY AND TELEPHONY**), was partially completed and in operation to the extent of about one-sixth of its capacity. This station, for transmission only, was designed to be the most powerful in the world, and when tested, its signals were intelligible in almost every quarter of the globe, being distinctly received in South America, Japan, and Australia.

The aerial system of this plant is arranged like a large wheel, with 12 spokes radiating in a horizontal plane, at a height of 410 ft., for a distance of 1 $\frac{1}{2}$ -mile from the power station as a centre. Each of the 12 aërials is intended for communicating with a different region. For example, there is one for France, one for England, one for Scandinavian countries, etc. Each aerial consists of 16 silicon-bronze, $\frac{3}{8}$ -inch cables supported from cross arms on steel towers. The generating plant includes a 200-kw., Alexanderson, high speed, high frequency, alternating current generator, for supplying transmitting energy.

For marine use, wireless telegraphy continued to demonstrate that it was indispensable to safe navigation. It was employed on an increasing scale for direction and position finding. Many wireless stations along the Atlantic Coast were equipped with direction-finding coils as adjuncts to standard receiving apparatus, and when called by a ship at sea, were able to furnish exact information to the master of the vessel as to his position.

The type of vacuum tube variously called audion, amplifier, heterodyne receiver, and thermionic valve, etc., that had become so vital a part of wireless telegraph apparatus was brought into use for radio-telephony as well, and with striking success. In its latest form, this device did more to advance the art of radio communication than any other one piece of apparatus. It was found that any ordinary receiving circuit appropriately tuned to the radiations emitted from a powerful station, could, by including an amplifier, receive speech, music or any other sounds originating at that station. During the year 1921, several occasions arose that offered excellent opportunities to test the capabilities of the device for disseminating news from a central point. On Armistice Day, Nov. 11, 1921, President Harding's address at the burial of the Unknown Soldier, at Arlington Cemetery, Washington, D. C., was delivered before a specially arranged receiver connected to a high power radio transmitting circuit. In many large cities,

receivers provided with amplifiers were set up, with the result that every word spoken by the President was distinctly heard by large audiences.

This notable demonstration furnished the suggestion, instantly acted on, to "broadcast" news items, market reports, music, sermons, etc., from large radio stations to any individual who would provide himself with a comparatively simple outfit, closely resembling the common radio receiving set; but including a vacuum tube amplifier. The result was immediate, and marked the greatest popular demand for scientific apparatus ever known. Manufacturers of radio outfits were swamped with orders to supply this suddenly created demand, and at the end of the year it was estimated that there were several hundred thousand amateurs, including schools, churches, clubs, etc., that were daily and nightly receiving aerial news, weather reports, concerts, etc., sent out from a few powerful "broadcasting" radio stations. Newark, New Jersey, and Pittsburg, Pa., were the chief centres of such service in the East.

The significance of this development is far reaching. It is impossible to forecast to what extent the increasing interest in radio-telephony may change the habits and domestic life of the people. With so many youthful amateurs interested in the subject, each eager for information and fascinated by the experimental opportunities presented, it seems likely that radio-telephony is about to take its place in the life of the people with the automobile and moving pictures.

RADIUM. The amount of radium produced in the United States during 1920 was $32\frac{1}{4}$ gm., but in 1921 production was more active and it was estimated would exceed 35 gm. By Jan. 1, 1921, 115 gm. of radium had been produced in the United States and the regular production was greater than all the rest of the world. This was due both to efforts made by the Bureau of Mines in the way of discovery and the initiative of private enterprises which have gone forward with confidence not withstanding temporary set backs and depressed markets. In fact there was enough radium produced in the United States to meet commercial requirements. Prices of radium remained steady during 1921, and was practically the same as in 1920. For small lots of radium, the price varied from \$115 to \$120 per mg. of radium element with reductions for larger lots, depending upon conditions of purchase and upon the amount of radium involved.

A substitute for radium in certain uses, particularly for luminous paint, was being employed in the form of mesothorium, which both the Welsbach Company and the Lindsay Light Company were producing as a byproduct in the manufacture of thorium nitrate for gas mantles. The mesothorium contained from 12 to 25 per cent radium, and, in practice, the manufacturers of luminous paint usually add a little more radium so as to bring the percentage of radium up to a slightly higher figure than is natural in the mesothorium. This mesothorium compound applicable to industrial use has the life of five or six years after it has "ripened" for about a year, so that its employment tends to conserve radium for medical use, research, and experimentation.

The United States is by far the largest producer of radium and has the largest known reserves of radium-bearing minerals. The quan-

tity produced, when compared with that of other minerals, even the most precious, such as gold, platinum, or diamonds, seems absurdly small, but in no other substance is so large a monetary value compressed into so small a bulk. The yearly output of gold and platinum may be measured by the ton, the output of diamonds by the thousand pounds, but the output of radium is measured by the gram (15.43 grains). Gold and platinum are sold by the ounce, and diamonds are sold by the carat ($4\frac{1}{6}$ grains), but radium is sold by the milligram, one two-hundred-and-fifth of a carat. The value of the other minerals named is due largely to their use as ornaments, but radium commands its price because it is most seriously useful. In 1920 the United States produced ore carrying 42.1 grams (about 1.5 ounces) of radium, and during the year the nine radium plants of the country isolated and placed in tubes 32,539 grams (1.15 ounces), worth about \$3,253,900.

Since 1911, when the first uranium minerals were mined in this country for radium, ore carrying 186.5 grams (6.6 ounces) has been mined and shipped to reduction plants, and about 125 grams (4.4 ounces) of radium has been extracted in this country. Before the World War some ore was shipped to Europe, and the radium was extracted in France, Germany, and Scotland. The quantity extracted abroad was probably not more than 10 grams, though this is a mere guess. The remainder of the 186.5 grams of radium was probably lost, for at first the quantity extracted in some plants was less than 50 per cent of the radium in the ore. Probably 25 per cent of the total output has been dissipated on watch faces, signs, etc., mostly during the war, some has been exported, and only 80 or 90 grams (3 ounces) has been placed in the hands of physicians and in hospitals. Europe probably almost exhausted its radium supplies by wasting uses similar to ours during the World War.

Three States produce radium-bearing minerals in commercially valuable quantities—Colorado, Utah, and Wyoming—but Colorado produces nearly nine-tenths of the whole. Nearly all of the Colorado ore carries carnotite as the uranium mineral, and it is mined in the southwestern part of the State, near the Utah line, between Gateway on the north and Cedar on the south. A little pitchblende was mined near Central City. In Utah uvanite, another radium mineral, was mined at Temple Rock, 45 miles southwest of Greenriver, and carnotite was mined near Thompsons and Moab. In Wyoming uranophane, still another radium mineral, was mined at Lusk. Efforts were made to mine torbernite, another radium mineral, near Silver City, N. Mex., but the deposit was too lean to afford a profit. No large deposits of radium minerals are known outside of the United States. Some pitchblende has been mined in Austria, England, and Germany; autunite and torbernite have been mined in Portugal, Madagascar, Tonkin, and South Australia; some tyuyamunite has been mined in Russian Turkestan; and a little carnotite and some obscure radium minerals have been mined in South Australia. From the ore mined at all these deposits probably less than 40 grams (1.4 ounces) of radium has been isolated. The whole stock of radium in the world to-day is probably less than 100 grams (3.5 ounces). 100 grams would be worth \$10,000,000. An

equivalent amount of gold coin would weigh about 17 tons. See CHEMISTRY, INDUSTRIAL.

RAILWAY ACCIDENTS. While the number of persons injured on or in connection with American railways continue to be appallingly large yet there were evidences of improvement notwithstanding a more or less evident deterioration in equipment during and following the war and failure to obtain and maintain in all respects adequate discipline. The Interstate Commerce Commission during the year published its annual statistics for the year 1920, and these furnished an excellent basis of comparison with an early period. While there were slight changes in the method of compiling and arranging the statistics, nevertheless those of 1920 can be compared with those of 1911 with considerable profit and show an improved record.

	Year ended June 30, 1911	Year ended Dec. 31, 1920
Total persons killed in train and train service accidents.....	10,396	6,958
Nontrespassers.....		
Passengers.....	299	229
Employees on duty.....	2,871	2,107
Employees not on duty.....	292	91
Persons carried under contract.....	57	35
Other nontrespassers.....	1,154	1,867
Nontrain accidents.....		
Industrial accidents—employees and others.....	439	463
Trespassers.....	5,284	2,166
	1911	1920
Number of employees.....	1,599,854	2,031,927
Passengers carried one mile.....	32,371,444.783	46,724,880,000
Ton-miles.....	249,843,166.302	409,970,656,000
Passenger train miles.....	548,279.061	571,653,863
Freight train miles.....	608,678.284	633,972,312
Total train miles.....	1,156,957.345	1,205,626,175

In fact an analysis of the Interstate Commerce Commission figures, prepared by the Committee on Accident Statistics of the American Railway Association, showed that fewer people were killed in 1920 than in any year since 1898. In that year the number of passengers killed was 315, while in 1921 the official records show only 229. Although the total number of employees in the railroad service in 1920 was several times greater than in 1891, the fatal injuries to employees in 1919 and 1920 were less each year than they were twenty-nine years previously.

Aside from the inexcusable loss of life itself there was also the purely economic side of the question, as during the year 1920 the aggregate of the payments made by the railroads of the United States on account of personal injury to employees, passengers, and others was estimated at over \$53,000,000; and a large proportion of the accidents resulted also in damage to property as will appear later. Every injury to an employee had the effect of disturbing the organization when his work was temporarily assigned to another with less experience. Every case of personal injury to a passenger had a harmful effect on morale and upon public good will.

While these factors could not be measured in dollars and cents, but including all factors the railroad expenditures on account of accidents which caused personal injury in 1920 were certainly far in excess of \$100,000,000. On the score of damage to property, in the year ended Dec. 31, 1920, the Interstate Commerce Commission reported a total of 36,313 train accidents resulting in damage to railway property amounting to \$34,129,860. Of those

the train accidents causing damage to railway property were placed at 33,384, of which 8858 were collisions, 21,314 derailments, 22 locomotive boiler accidents, 692 other locomotive accidents, and 2561 miscellaneous train accidents. In 17,955 cases the damage amounted to more than \$350 in each case.

DISTRIBUTION OF CASUALTIES AT HIGHWAY GRADE CROSSINGS

	1917	1918	1919	1920
Casualties:				
Killed.....	1,969	1,852	1,784	1,791
Injured.....	4,764	4,683	4,616	5,077
Total.....	6,733	6,535	6,400	6,868
Pedestrians.....	982	778	698	687
Occupants of:				
Automobiles.....	4,083	4,240	4,790	5,250
Other vehicles.....	1,668	1,517	912	931

The highway grade crossing continued to be a fertile field for accidents and there was no diminution in their number or seriousness. In the case of motor vehicles drivers unquestionably were to blame in many cases, and the railways were taking active measures to bring home personal responsibility. The accompanying table gives the nature and distribution of these accidents over a period of years.

BLOCK SIGNAL MILEAGE. On Jan. 1, 1921, the block signal mileage of the railroads of the United States, for the whole country, aggregated 101,833.6 miles of road. The totals are:

	Automatic	Miles of road Manual	Total
1921.....	38,543.9	63,339.7	101,883.6
1920.....	37,968.8	63,915.4	101,884.2
	Inc. 575.1	Dec. 575.7	Dec. 0.6

This statement showed that in a number of cases automatic signals had been installed in the place of manual signals and also indicated the more notable changes in 1920:

NOTABLE CHANGES OF BLOCK SIGNALS IN 1920 (MILES OF ROAD)

Name of road	Increase Automatic	Nonauto- matic	Decrease nonauto- matic
Atchison, Topeka, & Santa Fe.....	29.1	....	....
Baltimore & Ohio.....	25.0	....	20.1
Boston & Maine.....	....	32.4	....
Chicago, Burlington, & Quincy.....	215.1	....	216.8
Detroit United.....	1.5	326.7	....
Grand Trunk.....	10.1	131.3	....
Missouri, Kansas, & Texas; Missouri, Kansas, & Texas of Texas; and Wichita Falls & Northwestern.....	93.3	....	2.7
New York, New Haven, & Hartford.....	1.2	19.2	....
Northern Pacific.....	126.8	....	4.5
Pennsylvania.....	42.5	....	45.7
Pere Marquette.....	32.2	....	....
Richmond, Fredericksburg, & Potomac.....	32.2	....	....
Southern Pacific.....	....	....	129.6
Texas & Pacific.....	....	139.0	....

The net total length of road equipped with automatic block signals appeared to be 38,108 miles. This figure is the one of most immediate interest, in any study of progress, for the reason that the nonautomatic block system is operated under such varying rules and often applies to such

a small part of the trains that no measure of the value of the system is practicable without a study of the train movements and of the volume of traffic. Automatic block signals were reported electrically lighted on 8153 miles of road, 442 miles more than shown in the preceding report. The telephone is used for train orders on 122,022 miles of road, 2868 miles more than on Jan. 1, 1920.

SERIOUS ACCIDENTS. A disastrous collision occurred on the evening of February 27, when westbound New York Central passenger train No. 151 the "Interstate Express" plowed through the third coach of eastbound Michigan Central train No. 20, the "Canadian," at an interlocked crossing of these lines at Porter, Ind., some 40 miles southeast of Chicago. Thirty-seven persons were killed and 20 seriously injured. It was demonstrated that the Michigan Central train had run past a home interlocked signal in the stop position protecting the crossing at a high rate of speed, and was derailed on the split point derail which was open. The train ran on the ties for a distance of approximately 800 ft., and then while the third coach of the train remained upright and standing directly on the crossing of the New York Central, it was struck by the New York Central train, traveling at high speed, and absolutely demolished, and occasioning a frightful loss of life.

The Royal Palm Limited, No. 2, on the Cincinnati, New Orleans, & Texas, northbound, was derailed April 6, at New River, Tenn. Three coaches were nearly overturned and 5 passengers were killed. Other casualties included over 70 passengers, one employee, and three other persons injured. The locomotive was thrown off the track at a point where the outside rail of a curve of six degrees was not properly supported, the track being under repair at the time. Three steel passenger cars were badly damaged by coming in contact with rocks projecting from the bluffs on the outside of the curve.

A local passenger train on the Norfolk and Western was involved in the collision at Welch, W. Va., on May 2. While running backwards at about 15 miles an hour on a curve this train ran over a switch left misplaced by track repairers, and collided with a string of coal cars standing on a side track. Two coaches were crushed in the collision, 6 passengers were killed and 41 passengers and 1 employee were injured. The lookout was inefficient.

A rear end collision of westbound interurban cars on the Detroit United Railway at Warsaw, Mich., on June 18, resulted in the deaths of 4 persons and injuries to 24. Here a steel car approached a wooden car on a side track at uncontrollable speed on a descending grade. The motorman of the second car was blamed for negligence in not controlling speed.

A serious collision happily without loss of life occurred on the Pennsylvania Railroad near Manhattan Transfer, N. J., on the morning of October 28, about 12:30 o'clock, between westbound passenger trains. In this, 38 passengers, 4 Pullman employees and 4 railroad employees were injured. The accident was due to dense fog and express train No. 103, consisting of electric Motor No. 11 and 12 sleeping cars, moving at from 10 to 25 miles an hour, struck the rear of a preceding train, No. 701, which had been brought to a stop about one mile east of Man-

hattan Transfer station. This track was well protected by block signals, but train 103 ran past two automatic block signals set against it, one at caution and the other at stop; a second stop signal 271 ft. in the rear of the standing train; and also past a flagman and fusee and torpedo signals, not very far back from the standing train.

The flagman was censured for not affording his train proper protection, while the engineman passed the two automatic signals without observing their indications; and did not make a sufficient reduction of speed. The engineman's helper on train 103 also failed to observe the signals and to warn the engineman that signal locations had been passed without the indications being seen.

All of the cars involved in the collision were of steel; and this unquestionably prevented a large loss of life.

The Oregon-Washington limited, No. 17, westbound, collided head-on with eastbound train No. 12, which, because of washouts east of Portland, had been routed over the Spokane, Portland, & Seattle to the crossing of the Columbia river at Fallbridge, Wash. This accident happened on December 1, near Celilo, Ore., 96 miles east of Portland, and resulted in 6 persons being killed and 22 injured. Train No. 12 had just crossed the river to Celilo, and started east over its own line, on the Oregon side of the river, when the collision occurred. Three of the killed were passengers and one was a marine acting as mail guard.

One of the most serious accidents of the year was a butting collision of passenger trains on the single track Newton branch of the Philadelphia & Reading, near Bryn Athyn, near Woodmont, 16 miles north of Philadelphia, on the morning of December 5, resulting in the death of 27 persons and the injury of 65 passengers and 5 employees. The explanation of the accident as brought out in the investigation was that the train crew of the northbound train disregarded a meet order while a southbound train was allowed to depart from Churchville.

The two trains met head-on on a curve in a narrow rock cut. Here the wreckage piled up instead of scattering over the right-of-way and to this the heavy loss of life may be laid. Many victims were imprisoned beneath the mass of wreckage and so perished, who might have been saved if the debris had been scattered. As the cars of both trains were of wood they soon caught fire, and thus interfered with the active work of rescue by volunteer parties hastily assembled. The flames soon consumed both trains and with them perished the unfortunates imprisoned by the wreckage.

The injured were taken care of by a relief train from Philadelphia and removed to neighboring hospitals as rapidly as possible.

There was shown in the investigation a general laxity in the observance of block signal rules and lack of discipline in this connection. The fire was doubtless aggravated by the use of illuminating gas and the absence of steel cars was probably responsible for loss of life.

BRITISH RAILWAY ACCIDENTS. The usually good record for safety in operation of the British railways was severely impaired early in the year by a butting collision of passenger trains which took place near Abermule, Wales, on the Cambrian Railway, January 26, resulting in 17 persons being killed. The disaster was said to be unique

in the annals of British railways; and an unusual circumstance for British operation was the fact that two of the persons at fault were boys under 18 years of age, not well trained, but engaged in responsible station work.

Abermule, the scene of the collision, is about ten miles southwest of Welshpool and about four miles north of Newton, being the junction of a branch to Kerry. There was in use on the line here the electric train-tablet system, and the collision, one mile south of Abermule on official investigation was found to be due to negligence in allowing the southbound train to enter the block section at Abermule with the tablet just surrendered by that train for the section north of Abermule. The two trains met at a speed of about 25 or 30 miles an hour, and the engineman and fireman at fault were killed. The annual accident statistics of the Ministry of Transport showed that 991 persons were killed in railway accidents on British Railways in the year 1920, as compared with 932 in the year 1919. There was a total of 25,933 injured in the year 1920, as against 23,983 in 1919, an increase of 1950. Figures also were available showing that in Great Britain during the 20 years, 1901 to 1920, inclusive, 99 cases of bursting of boilers or tubes of locomotives had occurred, resulting in 7 railway employees being killed and 111 injured. In all but 6 cases employees were injured, so that it was apparent that the consequences were serious on each occasion.

FRENCH RAILWAY ACCIDENT. One of the most serious European railway accidents of the year was a rear collision of outgoing suburban passenger trains which occurred in a tunnel in Paris, France, on the evening of October 5. Thirty-three passengers were killed and a large number injured, many being injured or killed by flames. The trains had just left the St. Lazare station, about four minutes apart; but the progress of the leading train, whose destination was Versailles, was interrupted by the rupture of an air brake pipe.

The following train was for Marly-le-Roi and the immediate result of the collision was the breaking into flames of the cars, which was intensified by the explosion of a gas tank.

RAILWAYS. Whereas 1920 was a year in which the efforts of railroad officers were directed primarily to restoring the physical condition of the railroads, the year 1921 was a continuous effort to get the organization, and morale of labor, back on a normal basis. This fight was successful.

During the entire twelve months of 1921, railroad traffic was far below that of 1920. The railroads were operating with the increased freight and passenger rates which had been granted them in 1920, but likewise under the increased wages for labor, and at the beginning of 1921 the tendency for all roads was to show larger and larger net losses. A very considerable portion of a railroad's expenses are not directly variable with an increase or decrease in traffic, therefore, it is particularly difficult to offset a lower revenue through a reduction in expenses. Nevertheless, a majority of the railroads succeeded in doing this, largely because of the greatly inflated labor situation at the beginning of the year. In other words, had conditions been normal to start with, no such improvement as was shown would have been possible. Railroad labor

was actually earning only a small fraction of the wages that were being paid it at the beginning of the year.

On Jan. 10, 1921, E. T. Whitter, Chairman of the Conference Committee of Managers of the Association of Railway Executives, and T. M. Jewell, President of the Railway Employees Department of the American Federation of Labor, began the fight for the reduction of wages and the abrogation of the so-called National Agreements. The National Agreements are regulations by which the nature of various classes of railway employees' work is prescribed in minute detail and a standard set of conditions of work and pay are prescribed. On January 31, General W. W. Atterbury, Vice President of the Pennsylvania Railroad and Chairman of the Labor Committee of the Association of Railway Executives, appeared before the Railroad Labor Board and asked the immediate abrogation of all National Agreements. It was not, however, until March 18 that the railway executives were called as witnesses before the Board. On March 24 Mr. Jewell, representing the various Railway Labor organizations, began his reply to the executives.

The Board finally began, on April 14, to issue a series of decisions. In its first decision, the railroads' interpretation of collective bargaining was upheld. The Board, however, outlined sixteen principles with which new agreements made between employers and employees must be consistent. The negotiations between individual roads and their employees proved, almost without exception, to be abortive, and on June 28 the Labor Board issued an order continuing all National Agreements, and these agreements were in effect at the end of 1921.

One of the principles which the Labor Board laid down in connection with its order of April 14 was that in the negotiations between an individual railroad company and its employees, the dealings between the management and the men must be carried on by a duly elected representative of the men, and that in disputes before the Labor Board the men should be represented by duly elected representatives. The effect of this in practice was to put the entire control of the situation in the hands of the professional labor leaders of existing labor unions. In other words, it accomplished for railroad labor what Samuel Gompers, President of the American Federation of Labor, had attempted to accomplish for Labor generally in the two President's Conferences called by Woodrow Wilson, both of which split over this far-reaching question of a gift of national power to labor leaders.

Railroad men generally either failed to recognize this fact or accepted it as inevitable. The management of the Pennsylvania Railroad, however, was an exception. It called its employees together, told them they could vote for one of themselves as a representative to deal with the management and to appear before the Labor Board, but that the management would not accept as a representative any man not an employee of the Pennsylvania. This, if successful, would render the National labor leaders, who live on the salaries collected from the dues of labor union members, comparatively impotent. A large majority of the Pennsylvania employees accepted the conditions laid down by the management, selected representatives from among their

own number and voted to accept a reduction of wages. The shop crafts, however, refused to vote at all, claiming that this method was not in accordance with the ruling of the Labor Board. They appealed to the Labor Board and the Board upheld their contentions and ruled that the Pennsylvania's method was not in accordance with their findings.

There is no penalty provided in the law creating the Labor Board for the Board to impose on either employer or employee who disobeys its findings. Both sides to the controversy felt it important to have the legal status of the Labor Board passed upon by the Supreme Court, and finally the Pennsylvania applied for an injunction against the Board in an attempt to get the whole matter of the Board's jurisdiction before the Courts. The decision on this application was still pending at the end of 1921.

Besides the attempt to have the National Agreements abrogated, the railroads applied to the Board for a reduction of wages, and on June 1 the Board handed down a decision, effective July 1, reducing wages on an average of 12 per cent, which represented almost exactly half of the reduction which the railroad executives had asked for. After some negotiations, National labor leaders called upon the railway managements to wipe out the wage cut of July 1, to withdraw applications to the Labor Board for further wage cuts and for the abolition of the payment of punitive overtime. In the meantime a referendum vote, giving the labor leaders authority to call a general strike, was taken and the asked for authority was given.

The labor leaders called a strike for October 30 for the Train Service organizations. The other railway labor organizations held back and the Train Service organizations were left to carry on the fight. The Labor Board made various attempts to bring about an agreement without a strike, and finally W. B. Hooper, Vice Chairman of the Board, went to the labor leaders, in his personal capacity, and explained to them that the Board had issued a memorandum by which it stated, among other things, that further requests for reductions in wages would not be considered by the Board until all pending disputes regarding the rules and working conditions were disposed of.

In the meantime it became increasingly obvious to railroad managers that the strike, if one were called, would be a failure and a number of railroad executives quite openly expressed the hope that the "bluff of the labor leaders" would be carried through and a strike called. On October 27, three days before the strike was to take place, the Brotherhood leaders, after a conference with Mr. Hooper, made the announcement that the Board's memorandum was a "satisfactory settlement" of their grievances. There was therefore no strike.

The results that were being obtained by managers through the increase in labor efficiency, due to the growing conviction on the part of railroad employees individually that railroad labor had obtained more than railroad revenue was able to pay and that a reduction in wages and a readjustment of working conditions was inevitable, was clearly reflected month by month in net railroad operating revenues. By October most of the larger railroads, with certain notable exceptions, had returned to a normal operating ratio, by

which is meant that the ratio of operating expenses to operating revenues had fallen below 80 per cent.

In an article for the New York *Tribune* the author estimated that out of twenty-nine of the larger railroad companies, only four would fail to earn interest charges in addition to operating expenses in 1921, and figures available up to the end of 1921 bore out this estimate.

RECEIVERSHIPS. During this trying year of 1921 there was only one important receivership, that of the Atlanta, Birmingham & Atlantic. This was because the Government, in making its settlement with the railroads, had agreed to carry the roads over a certain period of time. The indebtedness of the Railroad Administration to the railroads is estimated at \$750,670,588 and the amounts due the railroad administration by the railroads on account of additions and betterments was placed at \$507,628,508.

Of the 241,194 miles of railroad taken over by the Government, the companies owning 107,063 miles have effected a final settlement with the Government. These settlements were made before arriving at the figures given above.

In all the Government spent \$1,144,000,000 in additions and betterments. Part of this has been actually paid and part has been taken care of by the issue of bonds and promissory notes and by the issue of 15-year equipment trust certificates.

Another factor which has prevented more railroad receiverships has been the ability, in the last few months of 1921, of the roads to borrow from the Revolving Fund. In all, the roads have borrowed \$263,000,000 from this fund and have paid back, up to the end of the year, \$21,000,000.

According to the compilation of the *Railway Age* there were thirteen small companies in addition to the Atlanta, Birmingham & Atlantic which went into receivers' hands, with a total mileage, including the A. B. & A., of 1744 miles, a total funded debt of \$21,662,413 and total capital stock of \$42,209,700.

FORECLOSURE SALES. There were two important reorganizations—the Denver & Rio Grande and the Chicago & Eastern Illinois. In all there was 4173 miles of railroad sold under foreclosure. The Chicago and Eastern Illinois accounted for 1131 miles and the Denver & Rio Grande for 2485 miles. The sale of the Denver and Rio Grande actually took place in November, 1920, but was not confirmed until March 28, 1921. Bankers and Protective Committees are still working on the reorganization plan.

The road was sold because of its default to pay interest on the guaranteed bonds of the Western Pacific. It was sold subject to existing mortgages, but reorganization plan contemplated the exchange of the first and refunding 5 per cent mortgage bonds for part stock and part bonds of the new company, which is to operate both the Denver & Rio Grande and the Western Pacific under the name of the Denver & Rio Grande Western.

The Chicago & Eastern Illinois was turned over on Jan. 1, 1922, to the new company of the same name. The reorganization plan of this company reduced the capitalization, exclusive of unpaid interest, from \$94,204,448 to \$91,033,750. The readjustment consisted of an increase in stock and a decrease in funded debt from \$62,908,000 to \$38,469,000. Fixed charges of the new company

are \$2,327,051, as compared with \$3,759,996 of the old company.

NEW MILEAGE. There was a total of 1626 miles of railroad lines abandoned in 1921, while there were but 475 miles of new railroad built. In Canada there were 151 miles new railroad built. From an investigation made in 1921 for the *New York Tribune* the conclusion was reached by the writer that there is a very small mileage of new railroads needed in this country and that what new mileage will be built in the next few years, will largely be to develop newly discovered mineral resources.

RAILROAD SECURITY ISSUES. The Interstate Commerce Commission's power to regulate the issue of securities by railroad companies became effective June 28, 1920. During the eighteen months since, the Commission has passed on about \$2,000,000 principal amount of securities. The reports of this department are for the fiscal year ending October 31 and in the year ended Oct. 31, 1921, the Commission had authorized the issue of \$242,647,500 stocks, \$1,276,761,616 bonds, \$98,402,195 notes, and \$97,780,313 miscellaneous securities.

In most cases the Interstate Commerce Commission approved the applications for permission to issue new securities.

In the case of the refinancing of the Great Northern and Northern Pacific Joint Bonds, secured by the stock of the Chicago, Burlington & Quincy, which became due July 1, 1921, the Commission refused the original plan presented by the bankers. There were \$250,000,000 of these collateral bonds outstanding. This collateral, of course, was held by the Northern Pacific and Great Northern jointly. The Burlington had put its earnings above 8 per cent on its stock back into the property for a number of years and carried a large surplus on its balance sheet. The Commission was asked to approve of the issue of \$60,000,000 of stock as a stock dividend by the Burlington and \$80,000,000 of bonds, to be used also as a dividend. The Commission refused permission for the issue of the bonds and finally a plan was worked out under which the Burlington issued a \$60,000,000 stock dividend and the Northern Pacific and Great Northern jointly sold a \$230,000,000 issue of 6½ per cent bonds which were secured by the deposit of both old and new stock of the Burlington and which were guaranteed, principal and interest, by the Northern Pacific and the Great Northern jointly.

These 6½ per cent bonds were convertible at the option of the holder into Great Northern 7 per cent bonds or Northern Pacific 6 per cent bonds at par. When the bonds were converted into either Great Northern or Northern Pacific, stock of the Burlington was transferred from the trustee of the joint bonds to the trustee of the Great Northern, 7 per cent bonds or the Northern Pacific 6 per cent bonds as the case might be. It was provided that when half of the joint bonds have been converted into one issue, the remaining bonds could be converted only into the other issue. The result has been that up to the end of 1921 the full amount had been converted into Great Northern 7s and the corresponding stock of the Burlington had been transferred to the trustee of the Great Northern bonds, while, on the other hand, only about \$20,000,000 of joint bonds were converted into Northern Pacific 6s. This has given the Great Northern control of the Burlington.

The sale of \$230,000,000 of Northern Pacific-Great Northern bonds marked a distinct change for the better in railroad credit generally. It marked a change for the better in the whole bond market, but it is the effect of the change on railroads that is important for the purposes of this article. Earlier in the year there had been a reaction after the sale in 1920 of New York Central, Pennsylvania, and other railroad bonds, and the poor earnings statements of the roads for the early months of 1921 intensified this reaction. In the latter part of the year deficits were largely ignored by investors and railroad companies which had been considered, over a long period of years, sound were able to sell well-secured mortgage bonds at a better price than other industries. For instance, the Buffalo, Rochester & Pittsburg sold, approximately, \$4,000,000 of its consolidated mortgage 4½ per cent bonds to Dillon, Read & Company, which bonds were offered to the public at 91¼ which is a slightly less than 5 per cent income yield basis. Earlier in the year even the strong roads had to pay more than 7 per cent for their money.

LOCOMOTIVES AND CARS. According to the statistics compiled by the *Railway Age*, the total number of locomotives ordered for the larger American railways in 1921 was 190; and the total for domestic use, including large and small railroads and industrial companies was 239. In addition there were 35 locomotives ordered from United States builders and 546 ordered from United States builders for export to foreign countries other than Canada. This makes a grand total of 820. This compares with 2905 ordered from American builders in 1920, 1170 in 1919 and 4888 in 1918. It is the smallest number ordered from American locomotive builders since 1897.

The number of locomotives built in a given year only in part reflects the orders of that year and in part reflects the orders of previous years. The total number of locomotives built in the United States in 1921 was 1708, and in addition 115 locomotives were built in Canada, making a total of 1823, which compares with a total of 2022 in 1920 and 2162 in 1919.

Again using the figures compiled by the *Railway Age* the full number of freight cars ordered for the larger American railroads was 21,003 and the total for all roads and for private car lines and industrials was 23,346. In addition there were 30 cars ordered for Canada and 4982 cars for export to other foreign countries, making a grand total of 28,358. This grand total compares with 105,669 in 1920, 29,893 in 1919, and 177,317 in 1918.

The number of freight cars built in the United States in 1921 was 46,704, as compared with 75,435 in 1920, 156,764 in 1919, and 108,044 in 1918. In Canada in 1921 they built 9149 freight cars, comparing with 6421 in 1919, and 16,664 in 1918. The 1920 figures were not given out.

The number of passenger cars ordered in 1921 for all United States railroads was 246. There were 91 ordered for service in Canada and 155 for export to other countries, making a grand total of 492, comparing with a grand total in 1920 of 2094 and of 782 in 1919, and 157 in 1918.

There were 1314 passenger cars built in 1921 in the United States and 361 in Canada, a total of 1675.

BLOCK SIGNALING. During 1921, 824 miles of railroad in the United States and Canada were

equipped with block signals. In part this work represents new construction, but in part also reconstruction and the substitution of automatic block signals for manual block signals.

There were fifty-three interlocking plants installed in the United States and six in Canada, as compared with forty-three in 1920 in the United States and two in Canada.

An installation of automatic train control is under construction on the Chesapeake & Ohio for a distance of forty miles. This section is single track and colored light signals are to be used in connection with the system.

CHANGES IN PERSONNEL. The two most important railroad regulatory bodies are, of course, the Interstate Commerce Commission and the Railroad Labor Board. On April 25, 1921, the Senate confirmed the appointment of W. B. Hooper, S. Higgins, and W. L. McMeninen as members of the Railroad Labor Board, representing the public, the managers and labor respectively. They succeeded H. W. Hunt, W. L. Park, and J. J. Forrester. On March 25 John J. Esch, who had been Chairman of the House Committee which had sat concurrently with the Cummings Committee of the Senate during the hearings on the railroad bills, which eventually were consolidated into the Transportation Act, was appointed Recess member of the Interstate Commerce Commission. On May 3 the Senate confirmed the appointments of E. I. Lewis and J. V. Campbell to the Interstate Commerce Commission, and on June 18 Edgar E. Clark was reelected Chairman of the Interstate Commerce Commission. On July 22 Chairman Clark resigned and was succeeded by Frederick I. Cox as a member of the Interstate Commerce Commission, and on October 3 Charles C. McChord, who had been a member of the Interstate Commerce Commission for a number of years, was elected Chairman, succeeding Mr. Clark in that office.

Charles A. Prouty, Director of Valuations and former member of the Interstate Commerce Commission, died on July 8, 1921, at Newport, Vt., and Charles S. Staples was, on July 16, appointed Acting Director of Valuation.

John Barton Payne, who had been Secretary of the Interior and Director General of Railroads, retired on March 4 and James C. Davis was appointed Director General of Railroads on March 26. The Railroad Administration is being continued until claims and counterclaims between the railroads and the Government have all been finally settled. It is this work which Mr. Davis will be in charge of.

The more important changes among the personnel of railroad executives were the death of Milton H. Smith, President of the Louisville & Nashville, and the appointment of Frederick L. Mapother as his successor. Mr. Smith had been recognized as one of the unusually able railroad executives. He was a man of the older traditions of railroading, opposed to government regulation, not in sympathy with the general attitude of the public toward railroads in the last ten years, but an unusually able administrator and a man generally respected both by his associates and employees and by the men who were opposed to his policy.

George R. Loyal, who had been Assistant to the President of the Southern Railway and had served under the Railway Administration, was

elected President of the Norfolk Southern. E. L. Brown, formerly president of the Denver & Rio Grande, Henry D. Ledyard, Chairman of the Board of Directors, and former President of the Michigan Central, J. F. Wallace, Chairman of the Chicago Railway Terminal Commission, and Epps Randolph, President of the Arizona Eastern and of the Southern Pacific of Mexico, died during the year.

NEW ENGLAND SITUATION. The New England railroad situation in 1921 became a matter of national concern and the New England railroads applied to the Interstate Commerce Commission for some form of relief. On March 15 a committee of New England governors began the statement of the New England railroads' case and when in April it was proposed to make the reductions in railroad freight rates, this committee appeared to protest against such reduction for New England. Operating costs on the railroads in New England have risen until all New England railroads in 1921 were facing severe financial difficulties. Terminal costs had risen more rapidly than any other class of costs on railroads and New England is much like a great, complicated railroad terminal.

By far the greater part of the freight business done by the New England railroads is an interchange of traffic with other lines, the raw materials being sent into New England and manufactured articles being sent out of New England. The New England roads asked that the Interstate Commerce Commission readjust the provision of through rates, as between New England roads and connecting United States roads, so as to give the New England roads a larger proportion of the total rates. The New England manufacturers claim, and it was generally conceded, that they cannot successfully compete with manufacturers in other parts of the country if either the freight rate on raw materials or the outgoing freight rate on manufactured articles was increased.

The trunk lines refused to concede the fairness of the New England roads' contentions, pointing out that the New England railroads entered into a joint rate with the Canadian roads, which was lower from points in the West than the rate via the trunk lines. The United States trunk lines suggested that if the New England roads wanted for revenues, they could go to the Canadian roads for a more generous division of through rates. On July 28, notwithstanding the fact that the Classification Law gives the Interstate Commerce Commission the power to fix the proportion of joint rates to be received by each railroad, the Commission refused to undertake to fix these New England rate divisions.

CONCLUSION. The Interstate Commerce Commission during the year gave out its tentative plan for the consolidation of the railroads. In the meanwhile the railroads themselves had been studying this question. No important consolidations have, however, taken place. It is probably fair to say that whereas in January of 1921 it was still extremely doubtful whether the roads could work out their own salvation under the Transportation Act, the railroads during 1921, with the exception of the New England roads, have demonstrated at least to the satisfaction of investors that they are able to work out their problem and remain solvent. It would appear, at the end of 1921, that they will be given a chance to do this through some kind of consolidation.

RAILWAYS, ELECTRIC. Financial depression made itself felt on street and interurban railways quite as much as in the case of industries generally. While there were few receiverships announced, there was no cessation of the discussion and agitation that marked former years in what may be termed "the war on the trolleys." While complaints of inadequate service and failure to make new extensions and developments were common in many cities, these complaints were loudest in the City of New York, where the municipal authorities, aided and abetted by a certain section of the press, were condemning all existing public transportation lines, in particular, the surface and elevated roads. It was quite evident that these criticisms and proposals to "scrap" all such lines and replace them with municipally-owned motor buses had a large element of political expediency in them. The unfortunate feature of the situation, however, was the inability of City and State authorities to agree upon any definite plan, either for improving the existing roads or for building new ones. At the end of the year, the Rapid Transit Commission was about to make public its report on the valuation of all surface, elevated and subway lines in the city. It was generally understood that this report would disclose a valuation considerably less than the amount for which these lines had been capitalized; a result of past financial mismanagement, at a time when a true realization of the city's rapid growth had not yet been obtained.

As regards steam railroad electrification, none was undertaken in the United States during the year. There were many plans under discussion; in most instances awaiting more favorable financial conditions before reaching the stage of letting contracts. At Chicago, the electrification of the terminal districts, that had often been under serious consideration, was again postponed. The Delaware, Lackawanna & Western Railroad asked for bids on construction and equipment for about twenty miles of its line in the mountainous region near Scranton, Pa., but no particulars of the motive power (whether alternating or direct current energy) were made public. The announcement and partial plan of the Super Power Scheme—(see **ELECTRIC POWERS, TRANSMISSION OF**), influenced many steam railroad executives to give serious consideration to the possibility of using electric power for their lines in the not distant future. In England, France, Switzerland, Italy and one or two South American countries, electrification of steam roads was proceeding slowly but steadily. The Italian State Railways, at the end of the year were operating a large proportion of their lines by electric energy derived from water power stations recently completed, Sweden, in which country there were already many miles of electrified roads, was preparing to make a considerable extension of them during the next year. In almost all cases, financial restrictions prevented further developments.

RAINFALL. See **METEOROLOGY**.

RAMSAY, GEORGE GILBERT. Scotch, educator, died at Saint Andrews, Scotland in March. From 1863 to 1908 he held the Chair of Humanity in Glasgow University. He was born in 1839 and educated at Rugby and at Oxford, winning distinction in his university course. He was called by his uncle, Professor William Ramsay, to Glasgow in 1861 and succeeded him in the

Latin chair. His teaching was most effective and he also showed ability in the administrative work of the institution. In politics he was at first a Liberal, but after the division of 1886, a Unionist, and he was well known for the effectiveness of his platform speeches. He resigned in 1908.

RANDALL, FRANK LANGE. Penologist, died at Minneapolis, Minn., August 6. He was born at Fort Ridgely, Minn., Sept. 30, 1856; educated at St. Johns College, Wisconsin; and after serving as a county superintendent of schools in Minnesota, was admitted to the bar in 1880. He was general superintendent of the Minnesota State Reformatory at St. Cloud, Minn., from 1900 to 1913; chairman of the prison commission of Massachusetts from 1913 to 1916; and director of the prisons of Massachusetts in 1916.

RANDOLPH, CARMAN FITZ. Lawyer, died, in 1921. He was born at Jersey City, N. J., August 17, 1856; studied at Harvard and Columbia Law Schools; and was admitted to the bar in 1879. He was a New Jersey delegate to the democratic National Convention in 1884, and a member of the New Jersey constitutional convention in 1894. Besides contributions to the reviews on public questions, he wrote: *The Law of Eminent Domain* (1894); and *The Law and Policy of Annexation* (1901).

RANDOLPH, EPES. Railroad president, died, at Tucson, Ariz., August 22. He was born in Lunenburg County, Va.; and was engaged in railway service in the south and in Mexico from 1876 to 1885. He was chief or consulting engineer of many lines, beginning with the Kentucky Central in 1885 and was high official successively of many important lines in the west and in Mexico.

RANDOLPH, LEWIS VAN SYCKLE FITZ. Financier, died at Plainfield, N. J. January 2. He was at one time president of the Consolidated Stock Exchange of New York City. He was born at Somerville, N. J., May 16, 1838; educated in private schools at Plainfield, N. J.; and employed in the American Exchange Bank in New York City from 1854 to 1863. During the Civil War he served in the New Jersey militia. In 1864 he became private secretary of the I. C. railroad company and afterwards its director and treasurer. He was president of the Atlantic Trust company from 1895 to 1903, a director of many other large corporations, and an executor of the estate of Samuel J. Tilden. He wrote a volume of poems, entitled *Survivals* (1901); and *Fitz Randolph Traditions* (1907).

RANKSBOROUGH, JOHN FIELDEN BROCKLEHURST, LORD. See **NECROLOGY**.

RANSOHOFF, JOSEPH. Surgeon, died at Cincinnati, Ohio, March 10. He was born at Cincinnati, May 26, 1853; and graduated at the Medical College of Ohio in 1874. He practiced surgery at Cincinnati after 1877, and was a professor in the Medical College of Ohio (incorporated in the University of Cincinnati) after 1879. He was a surgeon at the various important hospitals of the city and an extensive contributor on his subject to the scientific press.

RAPID TRANSIT. The difficulties of urban and interurban traction companies continued in 1921, and there was comparatively little done in the way of extensions or new construction. In many of the cities there was such congestion

as to give rise to demands for greater transit facilities while at the same time the crowded condition of streets made desirable subway or tunnel construction not always for through lines but as a means of handling suburban traffic centering at business centres. In 1921, however, private capital was little disposed to embark in such projects, while municipalities in many cases were unwilling or unable to finance bond issues for such construction. Furthermore, the question of operating costs and fares also figured, and in many communities there seemed to be a sentiment in favor of holding the fare to a five cent basis, irrespective of the nature or cost of service. Municipal ownership continued to be discussed during the year, but there was little actual progress made in that direction. Unquestionably in the municipal election in the City of New York the transit issue figured, obscured and distorted as it was; for to a proportion of the electorate apparently it seemed as if the five cent fare was a matter at issue. See New York.

CINCINNATI. There was under construction during the year a rapid-transit system which was noteworthy for its low construction cost and for a most convenient and serviceable arrangement, namely, a belt line surrounding the residential part of the city and traversing the heart of the business district. The city engineers were able to use for this purpose the right-of-way of the abandoned Miami & Erie Canal, which was turned over by the State for city transportation purposes. The belt line, irrespective of the advantage of the canal location, was considered as specially well adapted to the conditions in Cincinnati and the general arrangement of the new system was thought to be such as to exert later a great influence on the growth and development of the city.

During the year 1921 four sections of the subway portion of the line were under active construction and working plans were ready for two more sections. It was believed that by the end of 1923 about 11 miles of the system, which as planned was 16½ miles long, would probably be ready for operation. To construct the remaining 5½ miles additional money must be voted by the citizens. The line begins at Fountain Square, and extends north in subway in Walnut St., where it joins the canal and thence west in subway in the canal, or Central Parkway as it became known, to Plum St. At about Race St. a combined rapid-transit and interurban terminal station was planned, where at the outset only the centre portion of the station, to be used as a combined interurban and rapid-transit station, was to be built. If later traffic and other developments required this the rapid-transit tracks were to be put on the outside of the station under construction which would then be used exclusively as an interurban station.

From Canal and Plum Sts. the line turns and extends north in subway to Brighton. From this point a circuit is made returning to the starting point, the line except for a short tunnel being in the open, either of standard-gauge surface construction or reinforced-concrete elevated railway. The total length of the loop was about 16.45 miles, consisting of 2.45 miles of subway; 9 miles in the open, with bridges or subways at intersecting streets; 0.2 miles of tunnel; 3.4 miles of concrete

trestle, and 1.4 miles of concrete elevated structure.

When the plans for this new rapid transit were definitely developed in 1915 the total estimated cost was put at \$6,000,000 and this amount was duly authorized for construction by vote in April, 1916. Naturally on account of the intervention of the war and the resulting higher cost of construction, this amount in 1921 was, of course, inadequate and an additional bond issue of between \$4,000,000 and \$5,000,000 would be required. The portion of the line to Canal and Walnut Sts. could be constructed for the \$6,000,000 authorized. It runs through the suburbs of Oakley, Norwood, Bond Hill, St. Bernard, and Cumminsville and could be operated with profit before the entire system was completed. It included about 11 miles out of the total of 16.45 miles.

St. Louis. To secure improved transportation facilities and the more even growth of the city, as well as to relieve congestion in the business district and provide more direct access to suburban and other localities, the City Plan Commission of St. Louis and other official bodies have been engaged in studying the situation. There were found many deficiencies in the street railway operation due partly to poor location of routes and to the fact that the single operating company was in the hands of a receiver. In connection with the city's policy of opening, widening, and extending numerous streets, it was felt that a new arrangement of the street car lines could be effected which would facilitate more direct routing and quicken operation of individual lines. The plan aimed to connect and extend various lines and remove others which helped to increase rather than to relieve congestion.

The proposed extension and rerouting of the street railway service it was claimed would serve the needs of the city without serious inconvenience for at least ten years, so that independent rapid-transit facilities were not needed at this time.

However, the removal of certain transit lines from the surface of the narrow streets of the business district was considered an urgent necessity for the rush hour movement in St. Louis was said to be rather heavier than in other cities, and the increased crowding of these narrow streets by automobiles made it almost impossible to handle the evening rush hour traffic within this district.

Accordingly a subway loop was therefore, for all east and west lines across the business district, to be about 25 ft. wide and 14 ft. high, with its roof as close as possible to the street surface. Stations with stairways to the sidewalk would be located conveniently and the plans called for the eastern or downtown side of the loop to be placed on 9th St. in order to avoid interference with the steam railway tunnel on 8th St., connecting the Eads Bridge with the union station. It was realized that subway loops for rapid transit lines independent of the street car lines would be necessary eventually, but these would be distinct from the street car subways. Alternative plans for the rapid transit subways were suggested: (1) To divert railway traffic to the Municipal Bridge and use the lower (railway) deck of the Eads Bridge for rapid transit purposes; (2) that a new railway tunnel be built on 3d St., outside of the subway district, in which case the present 8th St. tunnel could be utilized as a rapid transit subway.

For rapid transit service beyond the subway district four elevated lines were proposed, two running west and the others northwest and southeast, respectively. These would be concrete structures spanning the street car tracks, except that the one on the private right-of-way of the Hodiamont line would be a solid fill with concrete retaining walls and street bridges.

In 1920 the estimates of cost were \$17,000,000 for the street car subway and \$17,000,000 for the rapid transit subway or \$80,000,000 for the complete rapid transit system, including elevated lines and subways. This would mean \$97,000,000 for relieving the street congestion and providing rapid transit facilities, but this could be distributed over a number of years as the execution of the project would be gradual.

The Department of Public Utilities also have given attention to this problem and during the year its engineers recommended a downtown suburban terminal station for steam railways at St. Louis, Mo., and a combined elevated and subway rapid-transit line for street and interurban electric cars. A 16-track suburban station at the southeast corner of Market and Twelfth Sts. was therefore proposed, having its floor 17 ft. below street level. Increased suburban train service was recommended, and a belt line service around the city and connection with East St. Louis, as the heavy traffic with the latter city was accommodated mainly by street and interurban electric lines.

To provide for the rapid transit electric service it was proposed that the Hodiamont line, which had a private right-of-way, should be elevated on a solid fill between concrete retaining walls from Maple Ave. to Spring Ave. At the latter point the line would pass into a subway ending in a loop under Lucas, Morgan, and Sixth Sts. and Broadway. Both suburban and interurban lines could use this route, the interurban cars making only few stops.

NEW YORK. Another step forward was taken in the development of the New York Subway system when the New York Transit Commission in October awarded the contract for the extension of the Queensboro route of the dual subway system from Grand Central Station under 42nd St. and Bryant Park to 8th Ave. The amount of the bid was \$3,867,138 and work was to begin in the near future.

In New York City the transit question as already suggested became one of politics rather than of design and construction. By chapter 134 of the Laws of 1921 the Public Service Commission for the first and second districts was abolished and a new commission for the entire State to consist of four members was established. There was also created for New York City a Transit Commission of three members appointed by the governor and authorized to make contracts for use of streets for surface railroads and for stage and omnibus routes. The Commissioners appointed were George McAneny, Leroy T. Harkness, and John F. O'Ryan. The organization and functioning of this committee was opposed by the municipal government and a controversy began which lasted through the entire year, the constitutionality of the act creating the commission being assailed in court. The New York authorities advocated an extensive system of omnibuses rather than the use of the

surface tracks. The commission sought to develop a general plan and made a survey of the situation, but there was more controversy and discussion than actual progress in clearing up the situation during the year.

Nevertheless in a report put out on September 29 the N. Y. Transit Commission made a general announcement of policy stating that it favored the valuation, consolidation, and municipal ownership of all transportation facilities in New York City. The plan of the commission contemplated the consolidation and municipal ownership of all surface, sub-surface, and elevated lines, deemed by the commission to be useful and essential, and their inclusion in three new operating groups. Group 1 was to comprise the subway and elevated railroads operated by the Interborough Rapid Transit Co., and leased by it from the city, and the Manhattan Railway Co. Group 2 would include the subway, elevated, and surface railroads operated in the Brooklyn rapid transit system; and Group 3 would embrace the surface railroads of the boroughs of Manhattan and the Bronx.

Administration of all the lines by a board of control of seven members was proposed, and operation was to be carried on by three operating corporate agencies to be created for the purpose. The commission further proposed that the transportation lines should be acquired without delay by the city, by amortizing out of earnings the valuation fixed by the Transit Commission. It also proposed that existing securities should be replaced by an issue of bonds of a consolidated company representing a new physical valuation of the properties. The much discussed question of fare it proposed to settle by having rates of fare based on actual cost and automatically determined by the amount of a contingent reserve or barometer fund. The Transit Commission expressed the hope that the 5-cent fare might be retained, and that the charge for transfers could be abolished. Recognizing that new construction was necessary it proposed that this should be provided for by increasing the city's debt-incurring capacity. Participation by operating personnel as well as new security holders in surplus profits resulting from efficient management and operation was also an element in the readjustment plan.

SAN FRANCISCO SUBWAY. Traffic conditions were developing to such an extent in San Francisco that the Board of Supervisors at their meeting on November 21, ordered the city engineer to study and prepare plans for a four-track subway under Market St. from the Ferry to Valencia St. a distance of about 2½ miles.

LONDON RAPID TRANSIT MAIL SERVICE. An underground electrically-operated railway was under construction during the year, which when completed would connect the chief post offices and trunk-line depots in the London district. This plan involved an automatic control electric system and was worked out by the engineering department of the London post office and Mr. Dalrymple-Hay.

From the Western Central District post office to Mount Pleasant sorting office and the general post office at King Edward building as centres or junction points it was proposed to develop a system extending to various railway stations and important post offices. Between the stations

the railway would consist of two lines of 2-ft. gauge track, each contained in a single tube of an inside diameter of 9 ft.

The trains will be operated without drivers on the remote-control system, using three types of electric current: high speed (HS), intermediate speed (IS); and low speed (LS). When the train is running between stations, HS current will be applied. The regulation of the current and the energizing of the conductor rails as required will condition the speed and stopping of the trains, there being an electric brake system which is also automatic.

The current and conductors can be so arranged that cars will be moved into slidings and stopped at certain sections in the same manner as that employed to stop them at station platforms, and a device will be supplied for automatically reversing the connections of the car motors so that they may be easily coupled up to form trains of two or more cars.

The position and destination of each train will be indicated to the switchman who will, with levers, set the track for any specified route and will energize the conductor rail sections with the current needed. A complete interlocking system will be in force between the different routes as regards track, switches, and current.

The arrangement provides that between the stations the conductor rail will be divided into sections, and while running between stations and before coming under the control of the switchman, the train will act to render each section dead as it leaves it and will energize it again upon entering the next section. This would secure a dead-rail section between adjacent trains. See TUNNELS.

READE, PHILIP. Army officer, died in 1921. He was born at Lowell, Mass., Oct. 13, 1844; and studied at the United States Military Academy. He had risen to the rank of captain in November, 1889, and in the following year served as instructor-general of volunteers. He returned to the regular army and was raised to the rank of colonel, August 13, 1903; retired, Oct. 13, 1908; and was made a brigadier-general, May 4, 1911. His military service lasted forty-four years, in the course of which he took part in the Civil War, Indian campaigns, the Spanish-American War, serving in Cuba and the Philippine Islands. He was a member of many important military and patriotic societies.

RECLAMATION. The general economic and financial disorganization throughout the world and the world-wide depression in agriculture following the World War have deterred the undertaking of large land-reclamation enterprises during 1921. While there have been everywhere proposals for placing veterans on the land, the fact that farmers are almost everywhere in financial distress has tended to minimize the interest taken in such settlement by the veterans.

IRRIGATION: UNITED STATES.—Reports of the Fourteenth Census of the United States, which included irrigation, were published during the year 1921, and the reports of irrigation are summarized in the following paragraphs:

The census of irrigation covered the States of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Arkansas, and Louisiana, and all the States between those named and the Pacific ocean. East of these States irrigation is practiced to a limited extent for fruit and truck crops, but

is not general, since there is sufficient rainfall for ordinary crops. Within the territory covered by the census the number of farms on which irrigation was practiced in 1919 was 231,541, which was 12 per cent of all the farms reported in that territory.

The area irrigated in 1919 was 19,191,716 acres, an increase of 33 per cent over the area irrigated in 1909. Existing irrigation enterprises reported that they were capable of irrigating 26,020,477 acres, which is 6,828,761 acres in excess of the area actually irrigated in 1919. There was included in irrigation enterprises in 1920 an area of 35,890,821 acres, which is 16,699,105 acres in excess of the area irrigated in 1919. The annual average increase from 1909 to 1919 in the area irrigated was 475,843 acres, and the excess of land to which existing enterprises were capable of supplying water in 1920 over that irrigated in 1919 would provide for the continuation of the average rate of increase for a period of more than fourteen years without any additional construction; while the completion of existing enterprises with capacity to supply the full areas now included in their plans would provide for maintaining the average rate of increase for over 35 years without the undertaking of any new enterprises. The areas reported as included in existing enterprises are undoubtedly larger than can be served by these enterprises, but, making liberal allowances for this, the figures indicate that there is no immediate demand for the undertaking of new enterprises unless the rate of expansion in the area irrigated is to be increased greatly.

The total capital invested in irrigation works up to 1920 is reported as \$697,657,328, an increase of 117 per cent over the amount reported in 1910. The average investment per acre enterprises were capable of supplying with water in 1920 was \$26.81, as against an average of \$15.85 in 1910.

The area irrigated in 1919 was distributed among the States as follows: Arizona, 467,565 acres, Arkansas, 143,946 acres, California, 4,219,040 acres, Colorado, 3,348,385 acres, Idaho, 2,488,806 acres, Kansas, 47,312 acres, Louisiana, 454,882 acres, Montana, 1,681,729 acres, Nebraska, 442,790 acres, Nevada, 561,447 acres, New Mexico, 538,377 acres, North Dakota, 12,072 acres, Oklahoma, 2,969 acres, Oregon, 986,162 acres, South Dakota, 100,682 acres, Texas, 586,120 acres, Utah, 1,371,651 acres, Washington, 529,899 acres, Wyoming, 1,207,982 acres.

The relative importance of the various agencies supplying water for irrigation is shown by the following distribution of the acreage irrigated in 1919 by type of enterprise: Individual and partnership enterprises, 6,848,807 acres, which is 35.7 per cent of the total; cooperative enterprises, 6,581,400 acres, which is 34.3 per cent of the total; irrigation districts, 1,822,887 acres, which is 9.5 per cent of the total; commercial enterprises, 1,822,001 acres, which is 9.5 per cent of the total; United States Reclamation Service, 1,254,569 acres, which is 6.5 per cent of the total; Carey Act, 523,929 acres, which is 2.7 per cent of the total; United States Indian Service, 284,551 acres, which is 1.5 per cent of the total; all others, 53,572 acres, which is 0.3 per cent of the total.

The sources from which water is obtained for irrigation are shown by the following distribution of the area irrigated in 1919 by source of water

supply: Gravity flow from streams, 14,527,080 acres, which is 75.7 per cent of the total; pumped from streams, 1,226,510 acres, which is 6.4 per cent of the total; from streams, partly by gravity and partly pumped, 199,598 acres, which is 1.4 per cent of the total; pumped from wells, 1,263,098 acres, which is 6.6 per cent of the total; flowing wells, 65,856 acres, which is 0.3 per cent of the total; gravity flow from lakes, 100,646 acres, which is 0.5 per cent of the total; pumped from lakes, 35,730 acres, which is 0.2 per cent of the total; springs, 198,008 acres, which is 1.0 per cent of the total; stored storm water, 98,873 acres, which is 0.5 per cent of the total; other and mixed sources, 1,440,652 acres, which is 7.5 per cent of the total. The area receiving its total supply from streams is 83.4 per cent of the total; the area in the various mixed classes that gets part of its supply from streams is 7.4 per cent of the total, making something over 90 per cent of the total area irrigated that receives all or most of its water supply from streams. The area receiving its total supply from wells is 7.1 per cent of the total area irrigated.

The irrigation data are also classified by the drainage basins in which the irrigated land lies: The area irrigated in 1919 is distributed among the main drainage basins as follows: Missouri river and tributaries, 4,147,278 acres; Mississippi river and tributaries other than the Missouri, 953,493 acres; streams flowing to the Gulf of Mexico other than the Mississippi and the Rio Grande, 698,077 acres; the Rio Grande and tributaries, 1,293,863 acres; Colorado river and tributaries, 2,312,047 acres; the Great Basin drainage, 2,313,163 acres; Columbia river and tributaries, 3,873,245 acres; Pacific ocean streams other than Colorado and Columbia rivers, 3,570,687 acres. A very small area in New Mexico and Arizona lies in drainage basins that cannot be included in any of those named.

The census reports state that the reports of crops grown on irrigated lands are incomplete, but it is probable that the relative importance of the crops, as shown by reports of acreage and value, are correct. Alfalfa ranks first in both acreage and value, with 3,151,675 acres harvested in 1919, and a value of \$186,391,299. Wild, salt, or prairie grasses rank second in area, with 974,507 acres cut in 1919, but it ranks below many other crops in total value, the amount reported being only \$17,954,630. Rough rice ranks third in area, with 892,761 acres, and second in total value, with \$96,368,090. Spring wheat ranks fourth in area, with 877,411 acres harvested in 1919, but in value it ranks much lower, the amount reported being \$37,556,853. Tree fruits are not reported by acres but by number of trees. Oranges rank third in value, being exceeded by only rice and alfalfa, with a total of \$58,244,422. Potatoes follow oranges in value with a total of \$50,778,993, for an area of 154,194 acres. Sugar beets grown for sugar rank next to potatoes in value, with \$38,831,339, and an area of 377,655 acres. Grapes follow sugar beets in value with a total of \$36,304,252, the area not being reported. Cotton ranks next in value with \$30,457,881, and an area of 214,576 acres. Peaches and apples follow cotton with values of \$24,670,264 and \$24,566,584 respectively.

The twentieth Annual Report of the United States Reclamation Service shows the following facts as to its finances, and the results of its work:

Receipts to June 30, 1921: Sale of public lands, \$103,050,209.64, sale of town lots, \$549,718.56, advances from the general treasury, \$20,000,000, oil leasing royalties, \$4,617,665.13, potassium royalties, \$12,724.47, collections, \$37,055,942.14, total, \$165,286,259.14. The construction cost to June 30, 1921, was \$140,199,968.44, and the repayments on construction amounted to \$9,508,777.46. The gross cost of operation and maintenance to June 30, 1921, was \$13,654,158.54, and the revenues \$10,275,219.35, leaving a deficit on operation and maintenance of \$3,378,939.19.

The area irrigated in 1920 was 1,225,480 acres, and the area to which the service was prepared to supply water in 1920 was 1,661,960 acres. In addition to the area reported above about 1,000,000 acres received a supplemental supply, although deriving its principal supply from other sources. On the basis of the area to which water could have been supplied in 1920 the average construction cost per acre was \$84.35; however, a part of the cost should be charged to the land which receives a supplemental supply from the Government works. The report does not show how much of the cost should be so charged, but including the whole 1,000,000 acres in the area over which the cost is spread the average cost per acre becomes \$52.67 per acre. It is probable that the correct average cost per acre should be placed about midway between the two averages given.

FOREIGN COUNTRIES. The present government of Mexico has announced itself as in favor of irrigation development throughout the country. In January, 1921, it asked Congress for an appropriation of 25,000,000 pesos for irrigation work. The states also are backing irrigation. Several projects are in contemplation in San Luis Potosi. In Lower California the local government is backing a project to irrigate about 40,000 acres in the San Quinten Valley for the growing of sugar cane. In the state of Sinaloa the state authorities are building a canal to be about 50 miles long, to serve land in the Culiacan River Valley. In the Dominican Republic, notwithstanding the slump in sugar, an extensive irrigation project tapping the Yaque river is being completed. In Peru an irrigation project containing about 20,000 acres is under construction in the Cafeta Valley, about 140 kilometres south of Lima. Another large government project, the Pampas Imperial project, is under construction.

In Spain projects are being carried out on the Ebro and Duero rivers. The Commonwealth of Australia and the states of Victoria, New South Wales, and South Australia have arrived at an agreement regarding the storage and use of the Murray river waters. The agreement provides for a joint commission and that the cost shall be borne in equal shares by each of the parties. The total area irrigated in India in 1920 is estimated at 49,000,000 acres, an increase of about 2,000,000 acres over the area irrigated in the preceding year. In Siam a large irrigation project is under construction, to provide water for rice growing. Among the public works under construction in the Philippines are irrigation projects designed to supply water to 300,000 hectares of land. They will require about ten years for completion.

DRAINAGE: UNITED STATES. The first census of drainage in the United States was taken as

a part of the Fourteenth Census in 1920. The figures all relate to drainage of land for agricultural purposes. Drainage has been provided for 53,024,975 acres of agricultural lands which is 5.5 per cent of all the land in farms in the United States. This area is equal to 10.5 per cent of all the improved land in farms in the United States. The additional area of farm land in need of drainage is reported as 39,110,357 acres, or 4.1 per cent of all land in farms. Of this additional area in need of drainage, 10,459,181 acres can be made available for agricultural use by drainage only, while 28,651,176 acres require clearing as well as draining.

The figures just given relate to land in farms at the date of the census. A further enumeration was made for organized drainage enterprises, most of which furnish only drainage outlets, leaving the farm drains to be installed by individual farmers. Nearly all of the drainage enterprises are controlled by public corporations organized under State laws, and known as drainage districts or local improvement districts. Usually these corporations have power to issue bonds to obtain funds for construction and to levy and collect taxes to pay their bonds and the expenses of operation and maintenance. Operating enterprises include all that had completed or had begun actual construction of drainage works by Jan. 1, 1920. The total area in operating drainage enterprises is 65,495,038 acres, which is approximately 3.4 per cent of the entire land area of the United States. Enterprises that had been organized, but had not begun construction by Jan. 1, 1920, which were termed "non-operating" enterprises, embraced a total area of 3,924,821 acres.

Operating drainage enterprises included 44,288,235 acres of improved land, 11,283,532 acres of timbered and cut-over land, and 9,923,271 acres of other unimproved land.

The capital invested in operating drainage enterprises to Dec. 31, 1919, was \$372,273,567, and the estimated additional investment to complete the works authorized was \$62,321,412. The average investment per acre for the United States as a whole was \$6.64 per acre. This, generally, includes outlet drainage only.

The acreage of farm land drained is distributed among the geographic divisions as follows: New England, 129,799 acres; Middle Atlantic, 1,673,638 acres; East North Central, 30,737,056 acres; West North Central, 11,758,939 acres; South Atlantic, 2,865,872 acres; East South Central, 1,720,517 acres; West South Central, 2,365,701 acres; Mountain, 456,015 acres; and Pacific, 1,318,238 acres.

FOREIGN DRAINAGE: Canada. Plans are under way for the drainage of 1,000,000 acres south of Winnipeg, at a cost of approximately \$1,250,000, by the Manitoba Drainage Commission. Out of 6,000,000 acres under cultivation in Manitoba more than 1,750,000 acres are in provincial drainage districts. The greater part of the land is being purchased by American settlers. **Holland.** Work on draining the Zuider Zee is progressing. It will reclaim about 480,000 acres, at a cost of about \$100,000,000. **Italy.** Large drainage projects along the Adriatic near Venice are being carried out to give employment to labor. **Brazil.** By a decree of Dec. 30, 1920, there was created a commission for the improvement of the low lands of Rio Janeiro.

RED CROSS, AMERICAN. This movement operates under a charter granted by Act of Congress, Jan. 5, 1905, and is officially designated (1) To furnish volunteer aid to the sick and wounded of armies in times of war in accordance with the conventions of Geneva; (2) To act in matters of voluntary relief and in accord with the military and naval authorities as a medium of communication between the American people and their army and navy; (3) To continue and carry on a system of national and international relief in time of peace and to apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities; and (4) To devise and carry on measures for preventing the same.

The record of the Red Cross work during 1921 showed marked expansion in peace-time activities at home and a contraction in foreign fields. The outstanding features of the year ending June 30, were as follows: (1) A reduction of the fourteen operating divisions to nine; (3) extensive and varied assistance to American veterans of the World War; (3) increased activity in public health and nursing service; (4) effective disaster relief at home and abroad; (5) a widening Junior Red Cross programme; (6) marked contraction of relief activities in Europe; and (7) a concentration of effort overseas on child welfare work, medical in character.

This work cost National Headquarters and the 3452 active chapters of the American Red Cross \$24,492,741.35, apportioned as follows: Relief in Europe, \$12,616,016.31; Other foreign relief (including China famine relief), \$2,092,613.01; Junior Red Cross activities, \$420,557.50; Relief of military service men and women, \$1,931,598.40 (in addition to which the National Organization spent \$1,255,706.82); Disaster relief, \$270,505.07; *Red Cross Magazine* and *Junior Red Cross News*, \$215,904.53; Operation of relief and service officers at National and Divisional Headquarters, \$3,378,603.53; Operation of bureaus for handling relief supplies, also transportation in United States of relief supplies, \$247,992.98; operation of management offices at National and Divisional Headquarters, \$1,015,547.43; Collections and enrollments and special publicity, \$631,494.49; Special public health activities, \$136,389.31; Special nursing activities, \$75,146.15; and Miscellaneous expenditures, \$1,460,372.64.

A summary of the year's disasters in which the American Red Cross rendered relief shows that they were of varying types, including several which previously have never been regarded as falling within the disaster classification. The organization furnished relief in seventeen fires, five floods, seven tornadoes or cyclones, one devastating storm, three explosions, including the one in Wall Street; one building accident, two typhoid epidemics, the most serious being that at Salem, Ohio, which affected 9 per cent of the population; one smallpox epidemic in the Republic of Haiti, one train wreck, the race riot at Tulsa, Okla., the famine in China, affecting millions of persons, emergency relief in famine among the Indians in Alaska, the grasshopper plague in North Dakota, and earthquakes in Italy and Albania. The forty-five disasters occurring in the United States resulted in the death of nine hundred persons and the injury of twenty-eight hundred, while property damage affecting sixty-nine com-

munities and rendering ninety thousand families homeless was estimated at thirty million dollars.

SERVICE TO WORLD WAR VETERANS. Service to veterans continued on a large scale. On June 30, 26,300 disabled World War veterans were in government and contract hospitals. To them the Red Cross rendered Home Service, recreational service, temporary financial aid, and many other forms of assistance, large and small, supplementary to governmental, medical, nursing and hospital service. There were 2329 Red Cross Chapters still engaged in some kind of war work; 448 Red Cross workers were continually on duty in the hospitals. The Red Cross expended, from the funds of National Headquarters and of the Chapters, nearly \$10,000,000 in behalf of the veterans during the year, and at the request of the government, with the American Legion assisted the Veterans' Bureau in a canvass of the country to locate all disabled ex-service men and acquaint them with their rights and privileges under the law. The Red Cross during the fiscal year, also made temporary loans to ex-service men amounting to several hundred thousand dollars, the bulk of which loans has been repaid. During the year the Red Cross assisted approximately 82,000 compensation and insurance claims, 80,000 allotment and allowance cases, 5000 miscellaneous claims, and secured the delivery of 2200 Liberty Bonds held as undeliverable by the War Department. In its Institute for the Blind at Evergreen, Md., the Red Cross trained 147 blinded ex-service men.

The gradual but marked reductions, retrenchments and readjustments of the Army and Navy had a corresponding effect upon that branch of the Red Cross charged with the responsibility of rendering service to the military forces. This service was available to virtually all men stationed at Army and Navy camps, posts, stations and hospitals in the United States and its possessions. There were 267 military and naval establishments served during the year; 999,819 visits were paid to patients, 38,843 letters written, and 8333 entertainments given.

On July 1, there were 37,787 nurses enrolled in the Red Cross Nursing Service, showing an increase during the past year of 1084. To meet the needs of three governmental services, the Army, the Navy, and the United States Public Health Service for assistance in caring for the veterans of the World War, 500 nurses were assigned from the Red Cross Nursing Service during the year. There were 1267 Red Cross Public Health nurses employed in 817 places.

In 1921 there were 73,592 certificates issued to women and girls who completed the Red Cross course in Home Hygiene and Care of the Sick. These classes included foreigners, Indians, deaf mutes, the blind; telephone operators, members of the W. C. T. U., and the Y. W. C. A., waitresses in hotels, women working in laundries and girls in Florence Crittenton Homes. On June 30, 1763 nurse instructors had been enrolled, of whom 591 were active. Red Cross nurse instructors also conducted classes in Poland under the auspices of the Polish Red Cross, where 742 certificates were issued from May to October, 1920.

Nutrition Service continued the work of enrolling women trained in home economics to act as dietitians in hospitals of the Army, Navy, and United States Public Health Service, or as in-

structors in the course in Food Selection. There were 22 hospital dietitians and 101 instructors enrolled during 1921. The total enrollment at the end of the year was 2514. The prevalence of malnutrition among children of the nation, rich and poor alike, as shown by inspections made by physicians, is a menace to the health of the nation and as such constitutes an emergency which the Red Cross tried to meet. Reports for the year show that 1114 nutrition classes were conducted, with an enrollment of 22,096 children. Visits totaling 4732 were made to the homes of these children.

FOREIGN RELIEF OPERATIONS. The American Red Cross confined its efforts in Europe almost entirely to the establishing of a chain of child health units and aiding countless numbers of refugees. In Austria food, clothing, and medical supplies were distributed to 500,000 persons, mostly children. Employment in the way of garment making was given to 40,000 native women. The work called for an expenditure from all sources of 25,000,000 francs worth of medical and other supplies to 235 hospitals, providing 3800 beds to 135 institutions, caring for 27,000 children and assisting organizations reaching 107,000 persons.

In South Russia and Constantinople the American Red Cross, in the middle of the winter, helped handle one of the most complex refugee problems in history. Called upon to suddenly care for 150,000 refugees, who were forced to leave the Crimea when Wrangel's army collapsed and were dumped into Constantinople on 111 ships of all kinds, the Constantinople unit did the work in a manner which won the praise of the allied nations whose agents were familiar with what was done. Not only did the American Red Cross distribute all the supplies originally placed at its disposal in the Near East, but it distributed \$300,000 sent by the Russian Embassy in the United States and an additional \$400,000 worth of supplies provided by the reserve fund at National Headquarters.

In Poland 40,000 refugees who had fled before the Russian Soviet invasion, were cared for, 500,000 under-nourished children were assisted with food and clothing, and permanent relief work was established in the way of child-health in 22 children's hospitals, 33 hospitals with children's wards, 345 children's orphanages and similar institutions. Through a system of railway relief trains, more than 1000 surgical cases were cared for weekly and a maximum of 750,000 persons were fed in a single month.

In Italy the chief work of the American Red Cross last year was assistance given in the Mugello and Tuscany earthquakes, when it gave an example of its utility in an emergency by having 215 tents with all relief supplies erected and in operation within 48 hours.

In Hungary the outstanding feature of the work for 1921 was the distribution to needy children and refugees of 1,500,000 articles of clothing and the mobilization of 50,000 native women in a nation-wide knitting campaign. A Junior Red Cross was also organized with a membership of 20,000. The total relief supply distributions of the Red Cross in Hungary for the year averaged ten tons per day.

In Greece 50,000 Greek refugees from the Caucasus were assisted with food and clothing and

later were given such supplies that a large number of them were able to colonize in 52 deserted villages and resume their normal occupations. A complete child-health programme was also inaugurated and some 10,000 children were started on the right course.

In Czechoslovakia the work for the year included a medical survey of 50,000 children; enrollment of 165,000 children into a Junior Red Cross, mobilization of 72,000 children into a health crusade; the distribution of large quantities of medical supplies and clothing and the establishment of the first two of 21 medical centres for child-health work.

In Montenegro the work of the Red Cross was devoted to assisting the war orphans of that country. The work was delayed by the necessity of caring for 18,000 Russian refugees who drifted in, but in spite of this the child-feeding kitchens served during the year a total of over 3,000,000 meals, while the health centres supervised and aided 20,000 children with medical supplies and surgical treatment.

In Serbia, another of the Jugo-Slav countries, relief work was thoroughly established among the 90,000 war-orphans, a large percentage of whom are suffering from tuberculosis and other diseases brought about by the low standard of living resulting from the war.

The work in Roumania was entirely among the children and consisted of financial assistance given to Roumanian organizations, both from the regular relief funds and the Junior Red Cross.

In Western Russia and the Baltic states child-health centres were opened by the American Red Cross during the year to the number of 132, and 13,000 children were treated monthly during the last two months of the year. When the programme is complete, medical supervision will be maintained over 450,000 children. In addition to medical care, 31,000 children were furnished clothing, an epidemic of dysentery was overcome in Latvia, and a still more threatening epidemic of typhus was destroyed in Lithuania. In the four Baltic states, 240 hospitals were also assisted.

Although the American Red Cross had liquidated most of its relief operations of France in 1920, during the past year it continued to help the children in the devastated regions and made several gifts of cash to carry on the work being done among the maimed soldiers.

In Belgium there was considerable distribution of supplies and general aid in the rehabilitation work being done. During the spring of 1921 all the remaining supplies of the American Red Cross in that country were distributed to hospitals, schools and other institutions, especially those caring for the children.

In Albania the American Red Cross, in several cities, established child-health stations so that in the month of June, 4200 children received medical assistance. Heroic work was also done during the earthquake disasters, lasting from Dec. 18, 1920, for nearly a week. In addition to what was done for the Albanians, the Red Cross fed 1000 refugees daily for a period of nine months.

In China, the Red Cross spent \$1,200,000 for the relief of the famine sufferers and it has been estimated that more than 600,000 people were thus saved from starvation. The method of relief employed by the movement was particularly effective for, in addition to saving thousands of

lives it gave China more than 900 miles of permanent roads that are sorely needed to prevent a recurrence of famine.

JUNIOR RED CROSS. This movement had for its programme for the year the "training for citizenship through service." This new phase of Junior work sought to make available to the schools, public, parochial, and private, the several services of the American Red Cross as a means of opening to the teachers and school authorities a wide range of projects designed to link up the schools and the local Red Cross Chapter. With a broad range of philanthropic activities for the unfortunate children at home, and educational relief projects for destitute children in thirteen foreign lands, it served to enlighten the minds, to nurture the good will, to improve the health, and to increase the happiness of thousands of children. More than 237,000 destitute or needy children in European countries were benefited by the relief work of the Junior American Red Cross during 1921. The National Children's Fund raised by the School children, was drawn on for \$420,557.50 for this work. Last year \$1,107,662.36 was received and \$638,396.24 expended.

REED COLLEGE. A co-educational institution of the higher learning at Portland, Ore.; founded in 1911. The enrollment for the fall of 1921 was 300. The faculty numbered 29. The library contained 20,965 volumes. A Commons-Union building was completed during the year. Changes were made in the requirements for admission, and the curriculum of freshman and sophomore years was reorganized. President, Richard Frederick Scholz.

REFORMED EPISCOPAL CHURCH. Under the leadership of Bishop David Cummins of Kentucky, a number of members of the Protestant Episcopal Church, who separated from the mother church because of its ritualistic practice, founded this denomination in New York in 1873. With the exception mentioned its doctrines are similar to those of the Protestant Episcopal Church and the Church of England. Also it has close connections with the Liturgical Free Churches of England. Meetings are held every three years. There was a convention in 1921, when there were reported to be 74 churches, and 11,050 communicants, a slight decrease from the figures of 1918. Church property was valued at \$1,702,187. Sunday school members numbered more than 9000. Seventeen missionaries carry on the missionary work of the Board of Home Missions among the needy churches and negroes of the south. Extensive foreign missionary work is conducted in India by 6 missionaries and 20 native helpers. There are 8 missionary stations. Educational activities of the denomination consist of a theological seminary in Philadelphia and 17 primary schools. It maintains two hospitals where 45,000 persons are treated annually, and an orphanage with about 50 inmates. The church publishing house is in Philadelphia, which issues *The Episcopal Recorder*, said to be the oldest church periodical in the United States.

REFORMED PRESBYTERIAN CHURCHES. Seven denominational churches form the Council of the Reformed Churches in America, following in general the Presbyterian principles. The Council was organized in 1906 and includes the following: The Reformed Church in America, the Presbyterian Church in the United States of America,

the Presbyterian Church in the United States, the Reformed Church in the United States, the United Presbyterian Church, the Associate Reformed Presbyterian Synod, and the Cumberland Presbyterian Church, Colored. The function of the Council is to act in the nature of a unifying and coöperative agency for the Reformed Presbyterian Churches. It meets biennially and between these meetings the business is intrusted to the Executive Committee consisting of the officers and committee chairmen. A meeting was held in Philadelphia March 15, when the constitution of the Presbyterian Reformed Church in America to effect a federal union of the bodies comprising the Council, was presented and in substance approved. It was urged at this meeting that steps be taken to have the United Assembly take the place of the present Council of Reformed Churches to avoid duplication of work. Statistics for 1921 for reformed Presbyterian churches were as follows: Reformed Church in America, 144,929 communicants; 757 church buildings; Reformed Church in the United States, 344,374 communicants, 1719 church buildings; Christian Reformed Church, 38,668 communicants, 233 church buildings; Reformed Presbyterian Church in North America, General Synod, 2386 communicants, 15 church buildings; Synod of Reformed Presbyterian Church of North America, 8185 communicants, 102 church buildings; and the Associate Reformed Presbyterian Church, 15,124 communicants, 130 church buildings. See also PRESBYTERIAN CHURCH, AND CUMBERLAND PRESBYTERIAN CHURCH.

REFUSE DISPOSAL. See GARBAGE.

REHABILITATION OF DISABLED SOLDIERS. See EDUCATION IN THE UNITED STATES.

REINACH, JOSEPH. French publicist, one of the leading supporters of Dreyfus, died in Paris, April 18. He was born in Paris, Sept. 30, 1856; studied at a lycée and in the law faculty of the University of Paris; and was admitted to the bar in 1877. He was private secretary to Gambetta from 1881 to 1882. He had already written largely for the press, and in 1886 he went again into newspaper work, becoming part owner of a Union-Republican paper. He was elected to the Chamber of Deputies as a Liberal-Republican in 1889, and again in 1893. He vigorously attacked the authorities for the introduction of secret documents in the Dreyfus trial of 1894; denounced the forgeries of the witnesses against Dreyfus; and was a fearless champion of the movement for revision. His writings pertaining to the Dreyfus affairs are voluminous, including a collection of pamphlets republished in 1898-99; a further account in 1900; and a six-volume history of the Dreyfus affair in 1901-04. Finally on this subject he published in 1905, *Les nouvelles catilinaires* (1905). A pamphlet on the teaching of history which originally appeared in the *Siècle*, caused his expulsion from his captaincy in the territorial army as a gross offense against discipline, and the withdrawal of his decoration of the Legion of Honor. His other publications include studies on the Near East; a history of the Gambetta ministry; a volume of literary and historical studies; various articles against Boulanger; and collections of articles on military subjects; also *Mes complexes rendus* (1911); and *La Réforme Electorale* (1912).

REINDEER. See ALASKA.

RELATIVITY. See ASTRONOMY.

RELIEF FOR WAR VICTIMS. With conditions in many of the countries improving, the most important development of the year was the Russian famine relief work undertaken by the American Relief Administration, the International Relief Conference of Geneva, of which Dr. Nansen was in charge, the American Friends Service Committee, and the Jewish Joint Distribution Committee. Heretofore three of these organizations had been working in Russia: Dr. Nansen in Siberia repatriating war prisoners, the Joint Distribution Committee in the Ukraine working among the refugees, and the Friends Service Committee in Moscow distributing soap, milk, and fats among the school children. But the excessive drought with its ensuing grain shortage caused a change or enlargement of policy. Reports of investigations showed the famine to be due to destruction through drought rather than to discouraged production under the Bolshevik régime. Approximately 80 per cent of the grain crop of the Volga district, the principal grain-growing territory of Europe, was destroyed. Consequently the problem has not been that of feeding the city dwellers alone, but of feeding the food producers—the farmers—as well. Ex-Governor James P. Goodrich of Indiana and Dr. Vernon Kellogg who had gone to Russia at the request of Mr. Hoover, found conditions in the Volga district so terrible that on their return to the United States they laid before the President and Congress a report on Russian conditions and urged that a government appropriation of \$20,000,000 be made for the purchase of corn and seed grains for relief. A bill making such an appropriation was passed and signed by the President, December 23, who designated the American Relief Administration as the agency for the distribution of these commodities. The purchase of the grain was placed in the hands of a commission composed of Herbert Hoover, James P. Goodrich, Edward M. Fleisch, Edgar Rickard, and Don Livingston. Five days after the President signed the relief bill the first cargo of corn purchased under the Congressional appropriation was ready for shipment from the United States.

AMERICAN RELIEF ADMINISTRATION. On July 23, Herbert Hoover as chairman of the American Relief Administration replied to the appeal of Maxim Gorki for aid for the famine sufferers in Russia. On August 20 an agreement between the American Relief Administration and the Soviet government was signed at Riga and supplies and personnel were immediately sent to Russia. Under this agreement all relief supplies furnished by the A. R. A. were to be distributed by its agents without interference of any kind from the Soviet government and all Americans detained in Russia were to be immediately released. Colonel William N. Haskell, formerly Allied High Commissioner in the Near East, was appointed Director of the American Relief Administration in Russia; headquarters were established in Moscow; and food stations were rapidly opened in Petrograd and Moscow and in the provinces of Saratov, Samara, Simbirsk, Kazan, Ufa, Orenburg, and Astrakhan. By the end of the year the American Relief Administration was feeding approximately 1,000,000 children in Russia and the number was rapidly increasing.

On October 19, an agreement was completed

with the Soviet government whereby individuals outside of Russia were enabled to purchase from the American Relief Administration food remittances in values of \$10 or multiples thereof for the benefit of their relatives or friends in Russia. Food packages corresponding to the amount of the remittances were delivered to the consignees from the A. R. A. warehouses in Russia. Thirty-three days after the food remittance agreement was signed in Moscow the first packages were delivered to Russian beneficiaries and by the middle of December over \$280,000 worth of remittances had been sold and deliveries were being made to all parts of European Russia. At the close of the year the sales were rapidly mounting.

On December 30 an agreement was signed in London by Walter Lyman Brown, representing the A. R. A., and Leonid Krassin, representing Soviet Russia, whereby the Soviet government allocated the sum of \$10,200,000 in gold for the purchase of American food and seed grains by the A. R. A. for famine relief. With this allocation the American Relief Administration had available for Russian relief at the end of 1921 supplies and money to a total of approximately \$40,200,000, which included the \$20,000,000 Congressional appropriation, \$10,000,000 representing the balance of A. R. A. funds for child feeding, and \$10,200,000 from the Soviet government. With these funds the Russian feeding programme of the A. R. A. was increased to 2,000,000 children and 500,000 adults with plans for further increases to 3,000,000 children and 5,000,000 adults as rapidly as transport conditions in Russia would permit.

The audited accounts of the A. R. A. for the fiscal year ending June 30, 1921, showed the following items under the heading "total relief applied":

Armenia in Caucasus.....	\$ 137,410.98
Czecho-Slovakia.....	269,621.69
Ethonia.....	186,260.07
Finland.....	16,678.14
Hungary.....	169,394.16
Latvia.....	145,655.77
Lithuania.....	31,197.28
Poland.....	5,104,102.71
Russia.....	13,897.79
Serbia (S. H. S.).....	71,260.61
Austria.....	3,256,983.89
American Friends' Service Committee (Germany, etc.).....	3,600,598.81
Danish.....	3,554.26
Liberated Districts of France.....	25,000.00

Total per Statement of Child Relief Operations.....\$13,031,616.16

During the winter of 1920-21 the American Relief Administration provided relief for over 3,500,000 children in Poland, Austria, Hungary, Czecho-Slovakia, Finland, Esthonia, Latvia, and Lithuania and in Germany, the latter through the agency of the American Friends Service Committee. In addition, it furnished funds for the relief of Russian refugees, clothing and supplies for the Serbian Child Welfare Association and the American Women's Hospitals in Siberia, food supplies to the American Red Cross toward the support of children in Montenegro, and aid to the Comité d'Assistance toward the support of children in the devastated regions of France. During the summer of 1921 conditions in Europe improved to such an extent that by the harvest of that year the A. R. A. was able to withdraw its

child feeding missions from Czecho-Slovakia and Lithuania and reduce considerably operations in other countries, so that at the end of the year less than a million children were being fed outside of Russia.

The headquarters of the American Relief Administration are at 42 Broadway, New York City.

THE NEAR EAST RELIEF. The Near East Relief, incorporated by act of congress in 1919, was working in 1921 among the people of Syria, Palestine, Turkey, Persia, Mesopotamia, and Russian Transcaucasia; a region that is equal in extent to the whole area covered by the European child-feeding programme. The organization was caring for over 100,000 children, the majority in orphanages, the others in soup kitchens and clinics. Owing to the recent fighting and destruction in the Caucasus and Western Turkey fully as many more children at the close of the year were in desperate need, but the organization could not give them shelter because of insufficient funds, and so the death wagon gathered them up as it made its daily rounds. While all the money of the Near East Relief does not go for orphan work, it is the chief emphasis everywhere; and in Syria, Palestine, and Transcaucasia at present it is practically the only activity.

The following brief financial statement, from July 1, 1920, to June 30, 1921, was the last official summary after all accounts for the year had been audited:

Caucasus.....	\$1,468,648.55
Constantinople, including Anatolia, Western Cilicia, and Greek Islands.....	2,207,050.25
Syria, including Eastern Cilicia, and Palestine.....	1,248,589.93
Persia.....	347,000.00
Mesopotamia.....	230,000.00
Mesopotamia—Persia.....	30,000.00
Personnel.....	151,382.96
Miscellaneous.....	560,970.88
Relief cargoes.....	3,009,306.60
Individual remittances.....	713,077.03
Total.....	\$9,984,026.20

Though \$10,000,000 was the amount raised during the year, larger sums were needed on account of the increasing need owing to political conditions, and at the close of the year the situation was still more aggravated.

The official relief totals of the Near East for 1921 were:

Orphanages.....	124
Orphans—entire.....	45,080
Orphans—partial.....	19,027
Partial orphanages.....	58
Home orphans.....	19,817
Hospitals.....	38
Beds.....	1,671
Patients.....	9,579
Clinics.....	66
Clinic patients.....	88,401
Rescue home.....	7
Rescued persons.....	749
Industrial relief.....	12,561
Direct relief.....	168,641
School for orphans.....	1
Children in school.....	121

No one will question that the Near East Relief has done an almost unexampled piece of work in the last few years. Thousands of children who wandered homeless in Asia Minor, have been gathered together into orphanages. Hundreds of young Armenian girls, the victims of Turkish brutality, have been rescued. Practically the en-

tire population of the Armenian Republic was saved on the brink of starvation. Great pestilences have been stamped out. Over a million people live now who would have to-day been dead. But the question that now faced the Near East Relief and its contributors at home and abroad was, what to do in the future with these rescued people. They had as yet no means of caring for themselves and until they could, or until other agencies could be found to carry on the work, it seemed that the Near East was in duty bound to continue the work which had been so well begun.

The offices of the organization are at 151 Fifth Avenue, New York. The officers are: James L. Barton, chairman; Charles V. Vickery, secretary; and Cleveland H. Dodge, treasurer.

JEWISH RELIEF WORK has been carried on since 1914 by American Jews through the Joint Distribution Committee. This is a disbursing and directing committee organized to spend most advantageously the funds collected by three Jewish relief committees: The American Jewish Relief Committee; the Central Relief Committee; and the People's Relief Committee. While many other organizations were seeing their obligations decrease and were able to diminish their support the Joint Distribution Committee expected to require \$14,000,000 for its work in 1922, which is an increase of about a million dollars over the expenditures for 1920. The committee estimated that \$5,000,000 alone were needed each year for the next five years to properly carry on the work of providing for the orphaned children. Child care, economic reconstruction, and medical relief among Jewish sufferers, together with the care of refugees, were the committee's chief concern. The refugee problem was one of the most difficult, not only because of the large numbers of people who were homeless, but also because in the wake of this problem came great political disturbances and the physical manifestation of anti-semitism in its worst form. The committee's field of operation has included not only Europe and Asia-Minor but has extended on occasion to Abyssinia and Siberia. Probably the chief beneficiaries, arranged in the order of their importance, have been Poland, Palestine, Russia, and the Ukraine, and those lands formerly composing Austria-Hungary. Wherever it has been possible for Joint Distribution Committee and the American Relief Administration to cooperate they have done so. The offices of the Joint Distribution Committee are at 20 Exchange Place, New York. Dr. Boris D. Bogen is the director-general.

OTHER FUNDS. The American Committee for Devastated France, 16 East 39th Street, which began its work of social reconstitution and agricultural restoration in 1918 was continuing for the present its operations, which were chiefly in the Department of the Aisne, but expected to be able in 1922 to inaugurate a programme of liquidation. The Committee has a record of achievement that would seem to justify the belief that "when the American Committee finally withdraws it will leave behind it in the four cantons a stronger race than can be found elsewhere in the devastated regions." The amount of land under cultivation in this district was 90 per cent of the prewar acreage and despite the summer's prolonged drouth which ruined the sugar, beet, and potato crops, the total harvest was more than 70 per cent of the normal. The Committee's Nursing department

had 27 nurses and covered 106 villages and the large towns of Rheims and Soissons; it also maintains a hospital at Blérancourt. "Foyers," or centres for community life, have been built in 20 different towns, libraries have been established and over 4000 boys and girls were receiving physical training. The work abroad was in charge of Mrs. A. M. Dike. The receipts for the year ending March 31, 1921, totaled \$563,625.55; a decrease of \$240,675.40 on the receipts for the previous year.

The Argonne Association, which has offices at 140 West 58th St. and whose secretary is Dr. Royal Storrs Haynes, supports and educates 200 French orphans. In its own words it is: "a permanent memorial to the Americans who fought in France; an organization for the care of French war-orphaned in families; a method for making self-supporting citizens of dependent children; an American demonstration of an efficient and economical plan for the care of dependent children anywhere."

The American Central Committee for Russian Relief was organized and incorporated in 1919 by a group of the friends of Russia, including the civilian members of the Russian Mission of Senator Elihu Root and prominent Russians and Americans, for the purpose of aiding the Russians who were victims of the Bolshevik tyranny, but political developments soon made it impossible to send relief to anti-Bolshevik Russians who were in the Soviet territory, hence all efforts were concentrated on the aid of the exiles scattered along the Russian frontiers. According to the Princess Cantacuzene, chairman of the board of directors, there were in 1921 at least one million Russian refugees who had been driven outside of Russia by the Bolsheviks, and the American Central Committee for Russian Relief was about the only society in this particular field of charitable work. The refugees were widely scattered and as yet the committee had not ascertained the numbers in France, England, Spain, Italy, and Austria, but in Scandinavia, Poland, Finland, Switzerland, Germany, Constantinople and the Balkan states and China there were about one million. The situation in Constantinople was especially bad as there were about 75,000 refugees living there in shacks, hovels, tents, cellars, and barracks with little or no means of livelihood to be found. During the two years of its activity the committee sent abroad for relief \$187,005.66 and 432 cases of food, clothing, and drugs. The amount sent abroad for the fiscal year ending Sept. 30, 1921, equaled \$128,829.66; the total receipts for the year were \$189,391.55. The committee was cooperating in every possible way with the American and Russian Red Cross Societies, with the Near East Relief and with other similar organizations so that there might be no overlapping of efforts. The headquarters of the committee are at 532 Seventeenth Street, N. W., Washington, D. C., Mr. Alex. Kaznakoff is the acting secretary. See RED CROSS.

RELIGION. See LITERATURE, ENGLISH AND AMERICAN.

RELIGIOUS DENOMINATIONS. See articles on the respective denominations.

RENSSELAER POLYTECHNIC INSTITUTE. A non-sectarian institution for technical training at Troy, N. Y.; founded in 1824. The enrollment for the fall of 1921 was 1112 students divided into



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AMERICAN RELIEF COMMISSION FEEDING LITHUANIAN CHILDREN
AMERICAN RELIEF IN EASTERN EUROPE

the following departments: Civil Engineering, 327; Mechanical Engineering, 258; Electrical Engineering, 288; Chemical Engineering, 207; General Science, 3; Special and Graduate students 29. The faculty numbered 83. The productive funds amounted to \$2,055,000 and the income to \$340,000. The library contained 14,000 volumes and 16,000 pamphlets, which are almost wholly technical. An addition to the Chemical Laboratory was finished at the beginning of this scholastic year at a cost of \$175,000. In the spring contracts for four new dormitory buildings were to be let, funds for which were to be raised by the alumni. President, Palmer C. Ricketts, LL.D.

REORGANIZED CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS. A Mormon denomination defined as the outgrowth or successor of the church founded at Fayette, N. Y., in 1830 by Joseph Smith, with which it is identical in faith and principle. For history see preceding YEAR BOOK. The church has a membership of about 95,000, distributed throughout the United States and many foreign countries. Churches number about 850. Foreign and domestic missionary work is carried on by the denomination. Zionism occupies an important part of its programme. A college is maintained at Lamoni, Iowa, and in addition the church conducts homes for children and the aged and a hospital. There are three publishing houses, located at Lamoni, Iowa, Independence, Missouri, and Sydney, Aust. The grandson of the original founder, Frederick M. Smith, is now president of the church. The headquarters of the denomination is at Independence, Mo.

RESEARCH COUNCIL, NATIONAL. Established in 1916 at the request of the President of the United States under the charter of the National Academy of Sciences. In 1918 the Academy was requested by executive order of the President to perpetuate the Council. It is a coöperative organization of the scientific men of America, including a representation of men of affairs and business men interested in industry and engineering and in the fundamental or "pure" science on which the "applied" science used in these activities depends. It is controlled by its own membership and supported by other than government aid, although it seeks to maintain close contact with government departments and organizations interested in specific scientific work and in the general promotion of science in the United States. It is composed of a series of major divisions, one group of seven divisions of science and technology representing physics, mathematics, and astronomy, chemistry and chemical technology, psychology and anthropology, geology and geography, biology and agriculture, medical sciences, and engineering; and another group of six divisions of general relations representing federal relations, foreign relations, States' relations, educational relations, research extension, and research information. Officers of the Council for 1922 are George E. Hale, Honorary Chairman; John C. Merriam, Chairman of the Executive Board; Charles D. Walcott, First Vice-chairman; Gano Dunn, Second Vice-chairman; R. A. Millikan, Third Vice-chairman; Vernon Kellogg, permanent secretary; F. L. Ransome, treasurer. The publications of the Council include the Annual Report, Bulletin and Reprint and Circular Series. Headquarters are care of the Smithsonian Institution, Washington, D. C.

REUNION. An island belonging to France, situated about 420 miles east of Madagascar. Area, 970 square miles; population (1912), 173,822, of whom 159,218 were Europeans, 130,000 of these being of French origin. Chief towns: St. Pierre, 29,481; St. Denis, 23,972; St. Paul, 18,646; St. Louis, 13,346. The chief port is Pointe de Galets which is connected by rail (state-owned) with St. Pierre. The elementary schools in 1920 numbered 169, with 361 teachers and 17,808 pupils. The chief products are: Sugar, rum, coffee, manioc, vanilla, tapioca, and spices, of which the chief exports are sugar and rum. In 1919 the imports were 41,759,750 francs; and the exports, 50,311,574 francs. In 1920 the budget balanced at 12,170,760 francs. It is under a governor, assisted by a privy council and an elective council in general, and it sends to the French parliament one senator and two deputies.

REYES, JUAN. See MUSIC, *Artists, Instrumentalists*.

REYES, RAFAEL. See NECROLOGY.

RHAETO-ROMANCE. See PHILOLOGY, MODERN.

RHALLYS DEMETRIOS. See NECROLOGY.

RHEUMATISM AND RHEUMATOID AFFECTIONS, CHRONIC. For a decade or more it has been realized that certain painful and disabling affections which closely resemble chronic rheumatism of the muscles and joints are due to or aggravated by the presence of small collections of pus in various parts of the system, notably infected teeth and tonsils. The eminent surgeon, Dr. J. B. Murphy of Chicago, looked forward to the time when our original conception of rheumatism as a disease of exposure, old age, and uric acid would give way to another based on what is termed focal infection. These affections include also what is popularly called neuritis. Many aggravated cases of these painful and incapacitating states have been cured or greatly benefited and invalids have been completely rehabilitated in this way. On the other hand, this idea has led to great abuses. An infected tonsil is best removed on general principles, perhaps, even if the owner seems in good health; but many teeth have been mistakenly pulled which might have been treated with success by conservative dentistry. Moreover, removal of infected teeth and tonsils may not lead to the desired result. In some cases this is due to overlooking some other focus of infection in the body of which there may be a number. These may be seated in the nasal passages, in the ear and in some of the pelvic organs of both sexes. The profession are beginning to realize that a search for a hidden deposit of pus in the body is a very exacting matter, involving the coöperation of a number of specialists. Even after the foci have all been localized and treated the patient may not recover his health; conversely there are individuals who may have badly infected mouths or nasal passages and yet preserve their health. Some of these cases of chronic rheumatism are of the type that yield readily to diet and medication. It is clearly best in the presence of these affections to begin with ordinary personal hygiene, diet and the use of drugs like atophan, cinchophen, tolysin, etc., in the belief that they are due to accumulation of uric acid. Here also belong the application of diathermic electricity, baking, ultraviolet light, massage and passive motion, mud baths and the use of alkaline mineral waters—in fact all of

our older resources which antedate the theory of focal infection. We may assume that the affected individual has kept his teeth in fair condition by occasional visits to the dentists. The patient who

MANUFACTURES. The accompanying table summarizes the final returns of the census of manufactures of 1919, with corresponding figures for 1914.

	1919	1914	Per cent of increase, 1914-19
Number of establishments.....	2,466	2,190	12.6
Persons engaged.....	156,012	124,109	25.7
Proprietors and firm members.....	2,124	1,883	12.8
Salaried employees.....	14,223	8,801	61.6
Wage earners (average number).....	139,665	113,425	23.1
Primary horsepower.....	321,016	269,854	19.0
Capital.....	\$594,337,448	\$308,444,563	92.7
Salaries and wages.....	168,509,358	72,621,981	132.0
Salaries.....	31,013,981	13,255,689	134.0
Wages.....	137,495,377	59,366,292	131.6
Paid for contract work.....	4,181,783	1,138,483	267.3
Rent and taxes.....	37,479,551	4,343,851	762.8
Cost of materials.....	415,989,203	162,425,219	156.1
Value of products.....	747,322,858	279,545,873	167.3
Value added by manufacture.....	331,333,655	117,120,654	182.9

fails to improve under the management for uric acid accumulation naturally comes under suspicion of focal infection and so widespread is the tendency to seek for occult pus deposits of small extent to explain chronic invalidism that teeth and tonsils have been removed for conditions like tuberculosis, trichinosis, or pork-worm disease, venereal rheumatism, pernicious anemia, gallstone disease and, in fact, almost the entire range of chronic infectious disease. At the first glimpse these overlooked diagnoses suggest a miscarriage of medical art but this is only partly true, for in many cases these subjects have really suffered from focal infections over and above their associated ailments and removal of the focus has been followed by remarkable benefit to the general state. Dr. Hartzell, a dentist who is also a physician, writes instructively of such cases in the *Journal of the National Dental Association* for September, 1921. He shows conclusively that in chronic invalidism attributed to infected teeth or tonsils some serious condition may be masked and that before removal of the foci it will be necessary to exclude numerous familiar causes of chronic disease, as tuberculosis, primary or pernicious anemia, diseases due to worms, gallstone disease, and appendicitis, venereal rheumatism, etc., etc. In some of these cases dental extraction or rather the use of the anæsthetic for that purpose may be very badly borne. Much of the abuse of the conception of focal infection has arisen from defective and unskilled interpretation of the radiograms of teeth, which should be left wholly to the judgment of an expert dentist.

RHODE ISLAND. POPULATION. According to the report of the census of 1920, there were 604,397 residents in the State, Jan. 1, 1920, as compared with 542,610 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	14,000	644,000	\$ 708,000
	1920	14,000	580,000	1,008,000
Hay.....	1921	46,000	151,000	1,367,000
	1920	46,000	151,000	1,685,000
Potatoes.....	1921	3,000	345,000	552,000
	1920	3,000	330,000	528,000

¹ Tons.

In 1920 there were 11 cities in the State—Bristol, Central Falls, Cranston, Cumberland, East Providence, Newport, Pawtucket, Providence, Warwick, West Warwick, and Woonsocket—having more than 10,000 inhabitants. The combined population of these cities in that year was 501,362, forming 83 per cent of the total population for Rhode Island, and in 1919 they reported 82.7 per cent of the value of the State's manufactured products. The predominance of corporate ownership is brought out by the following considerations: Although corporations owned but 34.6 per cent of the number of establishments in the State in 1919, they reported 90 per cent of the average number of wage earners and 91.2 per cent of the total value of products. During the five-year period 1914-19, the average number of wage earners in corporations increased 30,833, or 32.5 per cent, and the value of products, \$444,173,534, or 187.2 per cent.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Amendment of the corporation law; respecting working permits for backward children; amendment of laws relating to administration of estates (Sayles Probate Act); prescribing a course in fire prevention in the schools; providing for vocational rehabilitation of disabled persons and their return to civil life; prevention of sale of fraudulent "securities"; establishing a new milk standard and empowering cities and towns to regulate sanitation of milk; making all women subject to poll tax and provision for collection of poll tax on alien women; provisions for preventing and treating venereal disease; making an appropriation in aid of discharged soldiers and sailors out of employment; provision of requirements for bringing the State within the Federal registration area; disbaring women from serving on juries; increasing benefits to employees under the workmen's compensation law; authorizing cities to enact zoning ordinances.

OFFICERS. Governor, Emery J. San Souci; Lieutenant-Governor, Harold J. Gross; Secretary of State, J. Fred Parker; Attorney-General, Herbert A. Rice; Treasurer, Richard W. Jennings.

JUDICIARY. Supreme Courts: Chief Justice, William H. Sweetland; Associate Justices, Walter B. Vincent, Charles F. Stearns, Elmer J. Rathbun, John W. Sweeney.

RHODES SCHOLARS. See **UNIVERSITIES AND COLLEGES.**

RHODESIA. A territory belonging to Great Britain, situated to the north of the Transvaal and extending northward to the borders of the Kongo State and Tanganyika Territory (formerly German East Africa); constituting a British protectorate under the administration of the British South Africa Company whose charter dates from Oct. 29, 1889. It is divided into Northern Rhodesia, lying north of the Zambezi river; and Southern Rhodesia, to the south of that river, including Matabeleland and Mashonaland.

Northern Rhodesia, comprising the two former provinces of Northeastern and Northwestern Rhodesia which were amalgamated, August 17, 1911, has an area of about 291,000 square miles, with a native population of about 928,000 (Europeans estimated in 1919 at 2945). Seat of government, Livingstone on the Zambezi river. Chief agricultural products: Corn, tobacco, cotton, wheat, and fruits. Rubber is cultivated, and there is an abundance of timber. Minerals include: Gold, copper, zinc, lead, and coal. Imports in 1919, £434,354; exports, £454,366. Revenue, 1919-20, £149,792; expenditure, £215,288. Acting administrator in 1921, H. C. Marshall.

Southern Rhodesia has an area of about 149,000 square miles, with an estimated native population (1919) of about 770,000, and a European population, estimated at about 38,000. There are also about 3000 Asiatics and other persons of colored race. In 1919 there were 77 public and 4 aided schools, with 4674 pupils; and 696 native schools, with 39,381 pupils. There is a thriving fruit industry, especially of oranges and lemons to which development was assured by the construction of a dam across the Mazoe river in March, 1920, providing for the irrigation of the orange groves in the region. The acreage under crops in 1919 was 1,204,000, cultivated by natives; 210,000, by Europeans. There are rich resources of gold and other minerals. The output of gold from 1890 down to Jan. 1, 1921, was valued at £45,227,793. The mineral production for 1920 was valued at £4,450,988 as compared with £3,519,375 in 1919, the chief increase being in gold which in 1920 amounted to £3,056,549. Imports in 1919 were valued at £3,206,853. In Southern Rhodesia there were several branches of the Rhodesian railway system which begins in Cape Colony and extends to the Kongo State frontier. Revenue, 1919-20, £1,050,379; expenditure, £1,309,807. After 1916 Southern Rhodesia was under an administrator of the Company, aided by an executive council, appointed by the Company, and a legislative council, partly appointed by the Company and partly elected by registered voters. See **SOUTH AFRICA, UNION OF.**

RHYS-HERBERT, WILLIAM. American composer, died in Chicago, October 3. He was born at Resolven, South Wales, Oct. 3, 1868. For twenty-five years he lived in Minneapolis as organist, conductor, and composer of light operas. Among the most successful of his works are *The Nautical Knot*, *Bulbul*, *Sylvia*, and *The Wild Rose*.

RICE. Provisional estimates published by the International Institute of Agriculture, Rome, placed the rice production of the countries from which reports had been received as follows: Japan, 514,380,000 bu., Philippines, 80,344,000 bu., Ceylon, 13,776,000 bu., Italy, 23,624,000 bu.,

Spain, 15,502,000 bu., and Bulgaria, 224,400 bu. of rough rice. The world's production in 1921, by the same authority, was estimated approximately at more than 9,000,000,000 bu., so that the available data represented only a small part of the world's rice-producing areas. In 1920 British India produced 2,148,732,000 bu., and Indo China 226,193,000 bu. No data are published regarding the large rice production of China.

The rice crop of the United States in 1921, according to estimates by the Department of Agriculture, amounted to 39,653,000 bu. produced on 1,022,000 acres, the average yield being 38.8 bu. per acre, which was only slightly under the average acre yields of the two preceding years. The average farm values on Dec. 1, 1921, were 96.3 cts. per bushel, as compared with 119.1 cts. and 266.6 cts. on the corresponding dates of 1920 and 1919, respectively. As in previous years, Louisiana, California, Texas, and Arkansas were the important producing States, supplying about 90 per cent of the total yield.

In 1920 the production of the United States was 51,629,000 bu. and of the four States mentioned as follows: Louisiana, 25,200,000, California, 9,720,000, Texas, 9,554,000, and Arkansas, 8,889,000 bu. The highest average yield per acre in 1920, 60 bu., was secured in California. The rice crop of Japan in 1921, due to damage by rains and typhoons late in the season, was reduced to less than the approximate annual consumption.

RICE INSTITUTE. An institution of the higher learning at Houston, Texas; founded in 1912. The enrollment for the fall of 1921 was 878. The faculty numbered 53 with 73 fellows, assistants and student assistants. The endowment amounted to \$10,000,000 and the income to \$652,000. Gifts to the amount of \$8500 were received. The library contained 30,000 volumes. President, Edgar Odell Lovett.

RICHARDS, FREDERICK THOMPSON. Illustrator, died at Philadelphia, Pa., July 8. He was born at Philadelphia, Pa., May 27, 1864; studied at the Pennsylvania Academy of Fine Arts and the Art Students' League of New York City. He was on the staff of *Life* after 1889, and was cartoonist for various New York papers. Among his publications were: *The Royal Game of Golf* (a series of color prints); *Color Prints from Dickens*; and *The Blot Book*.

RICHARDS, JOSEPH WILLIAM. Metallurgist, died at Bethlehem, Pa., October 12. He was regarded as one of the leading authorities on aluminum. He was born at Oldbury, England, July 28, 1864, came to the United States in boyhood and was educated here. From 1887 he taught at Lehigh University, Bethlehem, Pa., being a professor of metallurgy there after 1903. He published in 1887 his treatise on aluminum which became the standard book in English and passed through three editions, and he was the author of several other valuable works on metallurgy.

RICHMOND, Sir WILLIAM BLAKE. British painter, died, February 11. He was born in London, England, Nov. 29, 1842; studied at the Royal Academy where he won two silver medals, and exhibited at the Royal Academy in 1860. From 1878 to 1883 he was Slade professor at Oxford, and he became president of the Society of Miniature Painters in 1899. He passed much of his time in Italy, Greece, and Egypt, and pub-

lished: *The Silver Chain* (1917), and *Impressions of Half a Century* (1919).

RICHTER, MAX. See NECROLOGY.

RICKETS. The disease rickets which consists chiefly of bone deformities appearing either in young children or later in life (late rickets), is generally believed to have been on the increase as a result of defective nutrition during the war. Even in the United States it is thought to be more common than usual and various theories have been advanced to explain it, such as exhaustion of the soil from excessive crop rotation during the war. But as far as can be determined ordinary rickets was not increased throughout the countries that were nearest to starvation. Certain other affections of the bones including the so-called late rickets, may have been more common but rickets in all probability is not due to defective nourishment nor to absence of the fat-soluble vitamine.

from the Federal aid funds. From the passage of the Federal Aid Act in 1916 to the close of the calendar year 1918 a total of about \$18,000,000 was paid out on Federal aid projects, about equally divided between money from the Federal treasury and from States and counties, this sum providing for 1706 miles of improved roadways. Up to Nov. 1, 1921, according to figures given out by Thomas H. MacDonald, chief, United States Bureau of Public Roads, 28,135 miles of highways had been completed or were under agreement under Federal aid, involving a total expenditure of almost a half billion dollars, of which the Federal government contributed about 40 per cent. The distribution of this mileage in accordance with types of improvement is shown by the accompanying table. Of the total mileage mentioned, about 21,000 miles had been actually completed.

FEDERAL AID ROAD PROJECTS COMPLETED AND UNDER AGREEMENT TO NOV. 1, 1921

Type	Cost		Mileage	
	Total	Federal aid	Total	Percentage of total
Graded and drained.....	\$ 55,704,253	\$ 24,721,021	6,864	24.4
Sand clay.....	22,226,362	10,495,172	2,696	9.6
Gravel.....	104,614,067	47,192,895	10,044	35.7
W. B. macadam.....	22,452,779	9,729,201	1,291	4.6
Bituminous macadam.....	41,412,557	18,646,066	1,323	4.7
Bituminous concrete.....	23,445,375	9,299,864	772	2.7
Concrete.....	184,021,245	75,600,279	4,654	16.5
Brick.....	22,039,845	6,925,483	444	1.6
Bridges.....	20,235,200	8,525,395	47	0.2
Totals.....	\$496,151,683	\$211,135,376	28,135	....

The truth is that rickets not infrequently attacks fat and overfed infants which eat freely of foods containing lime and fat. Rickets is an affection greatly favored by absence of sunlight and fresh air and especially by lack of exercise. An ideal way of bringing it about would be to place a young child two years old in a barrel in a dark and unventilated room. One of the most efficient remedies is the exposure of the infant to direct solar light or what amounts to the same thing the use of ultraviolet rays as furnished by the quartz lamp. Rickets is a disease preëminently of civilized countries although most prone to develop in large industrial centres. It is in the latter that the neglect of child hygiene is greatest as not infrequently the women of the household work in the factories and the children have to be shut up in close quarters for many hours.

RINDERPEST. See VETERINARY MEDICINE.

RITCHIE, ARTHUR. See NECROLOGY.

RITCHIE, JOHN GERALD. British Indian civil service official, died at Chelsea, England, in May. His name is best known from its association with that of Thackeray the novelist, the families having intermarried. He was born at Calcutta, India, in 1853, educated at Cambridge and entered the Indian service. Latterly he opposed the Montagu-Chelmsford requirements and sharply criticised them in the press, although he was a Liberal in politics. He published a volume of family and personal reminiscences under the title of *The Ritchies in India*.

RITTER, PAUL. See NECROLOGY.

RITTNER, THADDÄUS. See NECROLOGY.

ROADS AND PAVEMENTS. Immense sums for highway construction continued to be expended during the year from the proceeds of state, county, and other local appropriations and

A new Federal Aid Act, effective Nov. 9, 1921, contained an appropriation of \$75,000,000, to be distributed among the several States—provided each Federal aid dollar is matched by a dollar provided by the State—on the basis of their population, area, and mileage, as in the case of the earlier appropriations except that under the 1921 act no single State is to receive less than one-half of 1 per cent of the total \$75,000,000, or \$365,625. This gives larger amounts than formerly to the four States of Delaware, New Hampshire, Rhode Island, and Vermont. The new law provides that in approving federal aid projects, the Secretary of Agriculture "shall give preference to such projects as will expedite the completion of an adequate and connected system of highways, interstate in character." The distribution of funds is further conditioned upon the highway department of any State receiving the money designating "a system of highways not to exceed 7 per cent of the total highway mileage of such state as shown by the records of the state highway department at the time of the passage of this act." This 7 per cent road system is to be divided into interstate and intercounty highways, the interstate highways to comprise three-sevenths of the system but not to exceed more than 60 per cent of the Federal aid allotment to that State without special approval by the Secretary of Agriculture. The act provides for more highly centralized State control of roads built with aid from the Federal fund than heretofore; provides also that the roads must be 18 ft. wide or more as a rule; and recognizes the importance of proper maintenance. Heretofore the Federal aid fund has been available if matched dollar by dollar from money provided by the State or the county or some other source, but under the 1921 act every dollar of Federal money must be

matched by a dollar of State money and all the construction must be under State control—subject to Federal approval.

In Canada a dominion appropriation of \$20,000,000 for road aid is available for use in five years, the dominion to provide 60 per cent and the several provinces 40 per cent of the cost of dominion aid roads. According to the *Canadian Engineer* of Jan. 10, 1922, there were 4726 miles of dominion aid road under construction, estimated to cost a total of \$29,220,667, or an average of \$6183 per mile. Detailed figures by provinces are shown in the accompanying table: The

CANADIAN DOMINION AID ROAD PROJECTS

	Mileage	Estimated cost	Average cost per mile
New Brunswick.....	1,200	\$ 3,058,708	\$ 2,571
Nova Scotia.....	168	1,790,325	10,605
P. E. Island.....	181	329,565	1,818
Quebec.....	243	2,712,226	11,116
Ontario.....	603	13,863,155	22,980
Manitoba.....	764	3,478,902	4,546
Alberta.....	None	.....	.....
Saskatchewan.....	1,230	1,875,093	1,124
British Columbia.....	337	2,612,093	7,731
	4,726	\$29,220,667	\$ 6,183

variation in the cost per mile is obviously due to the character of the improvements, which in some of the provinces can be little if anything more than ditching and grading earth roads.

A notable event affecting both city pavements and highway road improvements (the latter often now being very little different than the former in character and cost) was an agreement to reduce the number of varieties of paving brick from sixty-six to eleven. This agreement was reached in Washington on November 15 at a conference between representatives of engineering societies and paving brick manufacturers, together with officials of the Department of Commerce. The standardization thus effected lies largely in sizes and patterns. All brick under the new standards will be 8½ in. long, but there will be a choice, limited compared with the past, in the other dimensions.

Highway construction has been on so vast a scale for some years past and municipal improvements in general have been so much restricted that little new comes to the front on the subject of city pavements. These seem to continue on very much the same old line and to be affected in many respects by the same general conditions as govern improved highway surfacing for heavy motor-vehicle traffic. There is an apparent movement toward the construction of municipally owned plants for building asphaltic and other bituminous pavements, especially plants for repair work. In March, 1921, the city of Philadelphia put in operation a municipal asphalt plant which is one of the largest city owned plants in the United States. It has a rated capacity of about 3700 sq. yds. of finished sheet asphalt surfacing per day, if devoted to that purpose alone, but the plant is also used to produce binder and bituminous concrete. In July, 1921, Philadelphia had some 620 miles of sheet asphalt and 115 miles of bituminous country road to keep in repair. For the present the plant mentioned will be used wholly for repair work.

ROBERTS, BENJAMIN KEARNEY. Army officer, died at Ossining, N. Y. July 16. He was

born at Memphis, Tenn., Nov. 28, 1846; and entered the Civil War as a lieutenant in the Iowa cavalry. He was on the staff of General George H. Thomas in 1865. After the war he entered the regular army, and had risen to the rank of major of artillery in 1899; colonel in 1903; and brigadier-general in 1905, when he retired after forty years of service.

ROCHE, ALEXANDER. Scottish painter, died at Edinburgh, March 10. He was born at Glasgow, August 17, 1861; and educated there and in Paris. His subjects are of great variety, including landscapes and figures, and many of them were exhibited in the United States as well as in Europe. Those in the United States include: "The Window Seat," in the Carnegie Institute, Pittsburg; and a portrait of Mrs. Andrew Carnegie and daughter (1903). Among his others are: "Tête-à-Tête" (1891); "Spring" (1900); "Prue" (1902); "An Old Song" (1902); "The Building of the Ship" (1905); "Old Harbor" (1907); "Pittenweem Harbor" (1908); "The Prison Gate, Mogador"; a portrait of himself (1916). His works are to be found in many foreign collections. They have been remarked for their refined handling and pleasing color, and his landscapes have been especially praised for their poetic insight.

ROCHESTER, UNIVERSITY OF. A non-sectarian co-educational institution of the higher learning at Rochester, N. Y.; founded in 1850. The enrollment for the fall of 1921 was 486 men and 391 women, and for the summer session of 1921, 96 men and 230 women. The faculty contained 74 members, of whom 14 were added during the year. The productive funds were \$14,417,133 and the income was \$762,456. The library contained 90,000 volumes, including 7000 in the Musical Library. The Eastman School of Music was opened for instruction, September, 1921. The School of Medicine and Dentistry was in process of organization and was expected to be open for instruction in the fall of 1924. President, Rush Rhees, A. M., D.D., LL.D.

ROCHESTER, N. Y. See GARBAGE AND REFUSE DISPOSAL.

ROCKEFELLER FOUNDATION. The Rockefeller Foundation was chartered by the State of New York in 1913, "To promote the well-being of mankind throughout the world." Although its chartered purposes are thus broad, it has so devoted its resources to programmes of public health and medical education throughout the world, that these have come to be regarded definitely as its fields. Its present resources are \$170,000,000, both the income and principal of which are available for appropriation. The Foundation accomplishes its work through (1) agencies which it creates to carry out specific programmes, and (2) other existing organizations unaffiliated with the Foundation, to which it makes appropriations to enable them to carry specific items of programmes in public health and medical education. Agencies of the first class are (1) International Health Board; (2) China Medical Board; (3) Division of Medical Education.

INTERNATIONAL HEALTH BOARD. This agency has from the beginning been under the directorship of Mr. Wickliffe Rose. During 1921 the Rockefeller Foundation made available for the use of this Board approximately \$2,500,000. This was expended in continuing and extending demonstra-

tions in the control of disease and in the development of coöperative public health programmes in different parts of the world. These programmes, always in coöperation with the governments concerned, were carried on during 1921 principally in twelve Southern States in this country in organizing efficient State and county health departments, in combating malaria and hookworm disease and in twenty-two foreign countries, states and islands in these diseases and yellow fever. Marked progress in world wide eradication of yellow fever has been made during the year; Guayaquil, Ecuador, an endemic centre from 1740 to May, 1919, remains free; an epidemic in Peru was quickly snuffed out before spreading to other countries. The Foundation's representatives have met with cordial coöperation in Mexico and in central and South American countries, regions where yellow fever is known to be endemic. A strong popular demand for preventive measures has been developed. Control measures have been instituted in every section of the world where yellow fever is known to exist. The International Health Board's Commission for the Prevention of Tuberculosis in France has continued, during 1921, its work begun during the war.

Thorough reorganization of public health agencies and administration is being carried out by many countries with the assistance of experts lent by the Foundation or its boards and by direct contribution of funds, notably Austria and Czecho-Slovakia. For the purpose of training native personnel and promoting greater efficiency and higher standards in public health, foreign fellowships for the study of public health in the United States have been provided. Those who have completed their training in previous years are taking the lead in progressive movements at home. Experts from various countries, as guests of the Foundation, have studied medical education and public health in the United States, Canada, and England.

As part of its public health programme, the Foundation has established and is maintaining a school of public health at Johns Hopkins University; is coöperating with Harvard University in developing the Harvard School of Public Health, and has made appropriations to New York University and Sao Paulo, Brazil, for the same purpose.

THE CHINA MEDICAL BOARD. This Board is charged with the development of the Foundation's programme of medical education in China. Mr. Roger S. Greene is director of this board. In September, 1921, the Peking Union Medical College was formally dedicated. This medical center was built by the China Medical Board which also provides for its annual budget. This group includes a medical school, pre-medical department, hospital and nurse training school. Aid is given by the Foundation through the China Medical Board to medical schools and hospitals already established in China, and fellowships and scholarships are provided to make possible advanced medical study in the United States, for medical missionaries on furlough and for Chinese physicians and nurses.

THE DIVISION OF MEDICAL EDUCATION. This agency is under the directorship of Dr. Richard M. Pearce, and has conducted investigations of medical education in the United States, Canada, western and central Europe, and the Far East. Five million dollars has been set aside to aid medical

education in Canada. The College of Physicians and Surgeons of Columbia University has been granted during the year \$1,000,000 toward a programme for reorganization of medical instruction in that institution. A coöperative programme, involving contributions of approximately \$4,000,000 by the Foundation, has been undertaken in connection with the medical centre in London, composed of University College and University College Hospital Medical School. Appropriations have been made to further the plan for developing a strong medical centre in Brussels.

Studies in nurse training, hospital administration and dispensary development are being made under Foundation auspices. The pay clinic at Cornell Medical School is being assisted as part of this programme. Emergency assistance in supplying American and British medical journals and in replenishing scientific equipment has been given to universities in Central Europe.

The executive officers of the Foundation are: George E. Vincent, president, and Edwin E. Embree, secretary. The offices are at 61 Broadway, New York.

ROGERS, WILLIAM KING. Physician, died, in 1921. He was born at Hastings, Minn., July 14, 1863; and graduated in medicine at the Medical College of New York University in 1889. After 1900 he was professor of otology at Ohio State University. He was surgeon or consulting surgeon of various hospitals, and a member of the important medical bodies within his specialty.

"ROMA," U.S. NAVY AIRSHIP. See **AERONAUTICS.**

ROMAN CATHOLICS. The constantly increasing prestige and influence of the Vatican as one of the direct consequences of the chaotic conditions, political and social, following the great World War was one of the outstanding features of the Church's record during the year. Some thirty governments were officially represented at the Holy See and five nuncios were delegated to the Central European states where the solitary one at Vienna used to suffice in former days. France restored her old diplomatic relations and the influential Archbishop Cerretti who began his notable diplomatic career at Washington was named in May the nuncio at Paris, and Archbishop Giardini was sent as a like official to Japan. Pope Benedict XV continued to favorably regard the more harmonious relations with the Italian government and in his formal public addresses and encyclical letters urged the return of a genuine Christian peace based on the principles of justice rather than the expedience of political greed and ambitions. He upheld the dignity of labor and the indissolubility of Christian marriage as the salvation of the family, the foundation of civilization, and the only true remedy for the social demoralization of the day. The Dante centenary was the occasion in May of an encyclical lauding the great poet as a disciple of St. Thomas of Aquin and wishing that his poetry should remain in the schools as a fruitful source of Christian truths. The Congregation of Rites met on November 28 and advanced the process of the beatification of John N. Neumann, who was Bishop of Philadelphia, U. S. 1852-60.

The changes in the College of Cardinals were numerous. These cardinals died: Philip Camassei, former Patriarch of Jerusalem, January 18; Andrew Ferrari, Archbishop of Milan, February 2;

James Gibbons, Archbishop of Baltimore, March 24; George Gusmini, Archbishop of Bologna, August 24; Augustus Dubourg, Archbishop of Rennes, September 25; Francis Cabrieres, Bishop of Montpelier, December 21. On March 7 the following cardinals were created: Dennis J. Dougherty, Archbishop of Philadelphia; Francisco Vidal Barraquer, Archbishop of Tarragona, Spain; Juan Benlloch y Vivo, Archbishop of Burgos, Spain; Karl Josef Schulte, Archbishop of Cologne; Michael von Faulhaber, Archbishop of Munich; Francesco Ragonesi, Papal Nuncio at Madrid. On June 13, three Italian Cardinals were added: Giovanni Tacci Porcelli, the Papal Major Domo; Camillo Laurenti, Secretary of the Congregation of the Propaganda, and Achille Ratti, Papal Nuncio to Poland.

At the end of the year there were eight vacancies in the College of Cardinals, 35 of its members having died during the Pontificate of Benedict XV.

THE HIERARCHY. With the death of the venerable Cardinal Gibbons, Archbishop of Baltimore on March 24, there passed away the last of the famous group of prelates that dominated the activities of the Church in the United States for two generations. The many new accessions to the ranks of the hierarchy have introduced new ideals, new influences and new methods. Besides the Cardinal the deaths of the year included: Bishop William A. Jones of Porto Rico, February 7; Bishop John P. Farrelly of Cleveland, February 13; Bishop H. G. Gabriels of Ogdensburg, March 24; Bishop Matthew Harkins of Providence, May 25; Bishop James Schwebach of La Crosse, June 6; Bishop J. M. Koudelka of Superior, June 24; Bishop Charles E. McDonnell of Brooklyn, August 8; Bishop Thomas Ogorman, September 18; Bishop James Trobec, retired, of St. Cloud, December 14, and Bishop Thomas Grace, of Sacramento, December 27.

To fill the vacancy made by the death of Cardinal Gibbons, Bishop Michael J. Curley was transferred from St. Augustine, Fla., and promoted to the Archbishopric of Baltimore, August 5. The other appointments to the vacant sees were: Bishop J. F. Canevin of Pittsburgh made titular Archbishop of Pelusium, January 10, and succeeded in Pittsburgh by the Rev. Hugh C. Boyle, April 27; Joseph McGrath, Bishop of Baker City, January 3; Francis J. Tief, Bishop of Concordia, March 30; E. Ledvina, Bishop of Corpus Christi, and M. F. Burke, Administrator of St. Joseph, Mo., April 27; August Schwertner, Bishop of Wichita, June 8; William A. Hickey, Bishop of Providence, June 13; Joseph Schrems, Bishop of Cleveland; Samuel A. Stritch, Bishop of Toledo, August 5; George C. Caruana, Bishop of Porto Rico; John J. Dunn, Auxiliary of New York; Michael J. Crane, Auxiliary of Philadelphia, August 19; Thomas H. O'Leary, Springfield, Mass., September 8; Thomas E. Molloy, Bishop of Brooklyn; Alexander J. McGavick, Bishop of La Crosse, and Edward F. Hoban, Auxiliary of Chicago, November 21; Joseph G. Pinten, Bishop of Superior, December 3; James P. Cronin, Administrator of Louisville, December 16.

CONVOCATIONS. The annual meeting of the hierarchy, Cardinal O'Connell, presiding began at Washington, September 21. It adopted resolutions favoring the limitation of armaments; the peaceful settlement of the Irish question, and selection of February as press month to help the prosperity

of the Catholic press. Reports showed the accomplishments of the Welfare Council during the year to have been the most successful since the inauguration of these annual meetings in 1919.

Important conventions were the Supreme meeting of the Knights of Columbus at San Francisco, August 4, at which the total membership was reported as 758,155, an increase of 87,600 during the year. The Catholic Young Men's 47th annual National Convention, at Atlantic City, urged a continuation of welfare work among boys. The National Conference of Catholic Charities, at Milwaukee, September 18-22, devoted the sessions to the problems of social hygiene, dependent children, moral welfare, and delinquents. The National Catholic Union of Men met at Washington on September 23 and of Women on October 19—and adopted inspiring programmes of social and community service; protective work for immigrants, travelers, and young girls.

American missionary activity in the Far East received a special impetus. In June, twenty Jesuits left for the Philippines to take over the work of the Spanish members of the Order who had gone to India to replace the missionaries there who had been displaced by the incidents of the World War. In January five Jesuits from St. Louis, Mo., went to India for the same purpose. Later five members of the Passionist order went to China as the first representatives of that order to do missionary work there.

A new Jesuit province, taking in all the new England States, was established with headquarters at Weston, Mass.

STATISTICS. The total membership of the Catholic Church in the United States and its possessions is given in the *Official Directory*, for 1921 as 28,122,859 of which number 17,885,646 are in continental United States, an increase here of 150,093 over the previous year and of 300,000 in the grand total. During 1920 the converts to the Church in 101 dioceses numbered 39,000 adults. There are in the United States 16 Archbishops, of whom 2 are Cardinals; 93 bishops; and 21,643 priests, an increase of more than 600. During the year 182 new parishes were organized increasing the total of churches, with resident priests to 18,790, as against 10,608. There are 5790 missions with churches, making the total of 16,580 churches and of these 399 were newly erected during the year. The free parochial schools number 6048 with an average attendance of 1,771,418. Four new colleges for boys, 16 academies for girls, and 2 orphanages were built. The number of orphans cared for is 46,777.

Under the direction of the Department of Education of the National Catholic Welfare Council (the official bureau of the Catholic bishops) a directory of the Catholic educational institutions of the United States was compiled for the first time and a summary of all the details gives these figures:

	Schools	Faculties	Students
Universities.....	16	2,000	19,802
Seminaries.....	51	1,063	6,667
Colleges.....	114	1,897	18,891
High schools.....	1,552	7,924	129,838
Religious seminaries.....	113	not given	4,581
Training schools.....	309	not given	10,544
Elementary schools.....	6,551	41,581	1,795,673
Totals.....	8,706	54,265	1,981,051

The elementary schools, consist of 5690 parochial, 503 private, and 358 institutional schools; 309 religious novitiates and normal training schools; and 113 religious seminaries.

Stated in terms of grades, there are 41,581 elementary school teachers (38,002 parochial, 1208 private, and 2371 institutional school teachers); 7924 high school teachers; 1697 college professors; 1063 seminary instructors, and 2000 university professors. The classification of the faculties of the schools shows 507 from the diocesan clergy, 4229 religious (men), 35,780 religious (women), 5871 lay, 7618 religious (unclassified), 114 unclassified, and 146 special teachers. There is a total of 766,034 boys in the schools as against 816,971 girls, and 398,056 unclassified. In the colleges (not including those in secondary departments) there are 15,566 male and 2385 women students, and the total enrollment for all colleges, including those that maintain secondary departments, was 37,890 of both sexes. St. Louis University had the largest enrollment; Georgetown the second, and Fordham the third. The Jesuits conducted 25 of the 74 colleges for men.

ROMAN CATHOLIC STATISTICS. The estimate of the Catholics in England and Wales, according to the *Catholic Directory*, is 1,931,991 as against 1,915,475 for the previous year. Children's baptisms increased from 58,092 to 77,721; marriages from 21,751 to 23,940, and conversions from 10,592 to 12,621. There are 4560 priests as against 4570, the decrease being accounted for by the war. Churches and chapels have increased by three, the number being 2363. There are three less secondary schools, although the number of pupils has increased to 43,965. Elementary schools decreased by eight. The number of pupils given is 316,917.

The centenary celebration of St. Mary's Cathedral, Sydney, the mother church of Australasia, in October showed that at present the Catholics in Australasia number 1,104,116, with 2165 churches, 1185 secular priests, 392 regular priests, 664 religious Brothers, 8082 nuns, and a Catholic school system, with 178,347 pupils.

ROMANCE LANGUAGES. See PHILOLOGY, MODERN.

ROSA, EDWARD BENNETT. Physicist at Washington, D. C., died, May 17. He was born at Rogersville, N. Y., Oct. 4, 1861; and graduated at Wesleyan University in 1886 where he was professor of physics from 1891 to 1902. In 1901 he was appointed to the Bureau of Standards as physicist and became chief physicist after 1910. He contributed extensively to American and European journals on the subjects of physics and electricity, making a specialty of theoretical and applied electricity and electrical measurements. He was in charge of the electrical division of the Bureau of Standards.

ROSEN, BARON ROMAN ROMANOVITCH. Diplomat, died in New York City, December 31, as a result of an injury from an automobile accident on December 14. He was Russian ambassador to the United States 1905-11 and after the Bolshevik revolution was obliged to take refuge in this country where he spent his last years in writing extensively for American magazines and preparing his memoirs. He was born in 1847, the descendant of Swedish ancestors who had settled in Lithuania after the wars of Gustavus Adolphus

and had acquired great wealth and prominence. He was educated at the University of Dorpat and later studied law in Petrograd. He was exceptionally qualified for diplomacy by his great gift for languages, social tact, and general cultivation. He began his career in diplomacy at the Russian Legation at Tokyo. He first came to this country as consul-general at San Francisco; next as chargé at Washington and later as consul-general at New York. The diplomatic posts held by him in other countries included ministries in Mexico, Serbia, Bavaria, Greece, and Japan, after which he became ambassador at Washington in 1905, succeeding Count Cassini. He and his family lost everything under the Bolshevik régime and he succeeded in escaping only after many dangers and difficulties, arriving in New York with only a small amount of money. For a long time he lived by the sale of his wife's jewels, but despite his age he became a very successful writer for the magazines, his articles being widely circulated. A part of the material was gathered and supplemented by him for a book under the title of *Forty Years of a Diplomat's Life* and shortly before his death its publication was undertaken by a London publisher. He spoke English, French, German, Italian, and Japanese. His command of English was remarkable.

ROSSMORE, DERRICK WARNER WILLIAM WESTENRA, Fifth Baron. British sportsman, died at Rossmore Park, Ireland, February 3. He was celebrated as a fox hunter and also for his social qualities. He succeeded his brother as baron in 1874. A book published by him in 1912 under the title of *Things I Can Tell* was widely known for its anecdotes and reminiscences of sporting and social experience.

ROUGEMONT, LOUIS DE. British author, died in London early in June. He was born in 1847 and in the last decade of the nineteenth century drew attention by his tales of adventure among the aborigines in Australia and the South Seas. A considerable sensation was caused by the disclosure that the accounts were fictitious. He died in the Kensington Infirmary to which he had been admitted under an assumed name. The name of Rougemont was, it is said, assumed; his real name was believed to be Henry Louis Grin, and he was said to be the descendant of a French-Swiss family.

ROWING. The Duluth Boat Club of Duluth, Minn., carried off the amateur rowing honors in the United States in 1921, being victorious in the national singles, fours, and eights. The championships were held under the auspices of the National Association of Amateur Oarsmen of America at Buffalo, N. Y., in August, the winners in the more important events being:

Senior eight-oared shells, Duluth Boat Club; junior eight-oared shells, Worcester A. C.; intermediate eight-oared shells, University of Toronto Rowing Club; senior international four-oared shells, Vesper Boat Club, Philadelphia; senior four-oared shells, Duluth Boat Club; single sculls, Walter Hoover, Duluth Boat Club; double sculls, Paul Costello, bow, and Jack Kelly, stroke, of the Vesper Boat Club, by default.

The intercollegiate regatta returned to Poughkeepsie after a lapse of four years, but the varsity race was contested over a three-mile course for the first time. The crew of the U. S. Naval Academy, which won the Olympic championship

in 1920, was the victor in the chief event with the University of California second and Cornell University third. Cornell won the freshman race, Syracuse being second and Pennsylvania third. The four-oared contest also was captured by a Cornell crew.

The annual Harvard-Yale regatta on the Thames resulted in a triumph for Yale, despite the fact that as a result of a quarrel between Guy Nickalls and the college rowing authorities, the former resigned as coach a few days before the date for the classic. Harvard's only winning crew was its junior eight. Several dual and triangular college regattas were held during the year, the Princeton oarsmen making an especially good showing.

Cambridge won the annual race with Oxford.

RUBBER. Rubber in 1921 suffered from the results of over-production and curtailed demand. In the eastern rubber producing regions there was a reduction in acreage and in further planting, quite a reaction from the excitement and activity of a few years previous. The estimated eastern plantation output of rubber for 1921 was placed at not more than 200,000 tons, or but 65 per cent of the 309,100 tons produced in 1920. It was also estimated that the rubber industry of the United States would require 242,000 tons for 1922, as compared with 229,000 tons in 1921, and as the United States was the market for about 70 per cent of the world's production, it was evident that the year's supply might not equal the demands of the industry. However no such fears were expressed as the world stocks of raw rubber were estimated at between 125,000 and 175,000 tons. So that it seemed at the end of the year that there was plenty of rubber still obtainable, and in addition no extraordinary demand or use likely to develop.

AUTOMOBILE TIRES. Naturally motor car tires form a leading consumption of rubber and it had been estimated by rubber company statisticians that about 32,000,000 tires would be required for the year 1921 to replace those worn out on the 9,211,295 cars registered at the end of 1920, at the rate of $3\frac{1}{2}$ tires per vehicle. The 1921 production totaled only 19,379,000 pneumatic tire casings, 24,157,000 inner tubes and 377,000 solid tires, and in this number were included not only the replacements but 6,720,000 tires for the 1,680,000 new cars produced. This represents a decrease of 33 per cent from the 32,400,000 tires produced during the year 1920.

It was believed that in addition to greater care and economy and decreased use of cars that still greater mileage was being obtained from the more general use of cord tires of ever-improving quality, and some authorities express the belief that the generally accepted ratio per car for annual replacements, $3\frac{1}{2}$ tires, might again have to be lowered. During 1921 it was only $1\frac{1}{2}$ tires per registered car, but as low a ratio cannot continue.

Conservative rubber men believe, however, that the actual demand in 1922 would be about two tires per car, or 20,000,000, making a total demand of some 28,000,000 tires and 35,000,000 tubes. The small number of solid tires produced in 1921 indicated conclusively the steady gains being made by giant pneumatics as equipment for trucks.

During the year the Tire and Rim Division of

the Society of Automotive Engineers, recommended that the S. A. E. standard for pneumatic tires and rims be revised by eliminating the 32 by $3\frac{1}{2}$, 33 by 4 and 33 by $4\frac{1}{2}$ -inch rim sizes and the corresponding regular and oversize tire sizes, and by adding the 30 by $3\frac{1}{2}$ -inch straight-side rim and the 31 by 4-inch oversize straight-side tire. The adoption of this proposal would reduce the standard to 5 rim sizes and 9 tire sizes for passenger cars and an equal number for motor trucks.

This action was taken in view of a widely expressed demand for greater simplicity and coöperation. Rubber manufacturers recalled that the original list of standard pneumatic tire sizes which was first adopted by the Association of Licensed Automobile Manufacturers nearly 15 years previously has been changed at frequent intervals, additions generally being made until during the war a definite schedule for eliminating certain sizes by groups at stated intervals of time was approved. This did not become effective and the standard was more or less disregarded by many car and tire manufacturers for use on new equipment.

However at a conference held in Cleveland in November, 1920, and attended by tire, rim, and automobile manufacturers a resolution was passed that the Society appoint a special committee representing the National Automobile Chamber of Commerce, the Rubber Association of America, and the Society of Automotive Engineers, for the purpose of carefully studying the existing conditions and preparing a recommendation satisfactory to the organizations represented and the industry in general.

The committee thus appointed conferred with the automobile and tire manufacturers and after careful study and many conferences the proposal recommended was finally agreed upon, submitted to the Standardization Committee of the Tire Manufacturers' Division of the Rubber Association of America, which approved it, and to the National Automobile Chamber of Commerce.

PROPOSED S. A. E. TIRE AND RIM RECOMMENDED PRACTICE

Type	Rim Size	Type	Tire size		Tire-seat Diameter
			Regular	Oversize	
Passenger car...	30 x $3\frac{1}{2}$	C	30 x $3\frac{1}{2}$	31 x 4	23
	30 x $3\frac{1}{2}$	SS	.....	31 x 4	23
	32 x 4	SS	32 x 4	33 x $4\frac{1}{2}$	24
	32 x $4\frac{1}{2}$	SS	32 x $4\frac{1}{2}$	33 x 5	23
	34 x $4\frac{1}{2}$	SS	34 x $4\frac{1}{2}$	35 x 5	25
Motor truck...	34 x 5	SS	34 x 5	36 x 6	24
	36 x 6	SS	36 x 5	38 x 7	24
	38 x 7	SS	38 x 7	40 x 8	24
	40 x 8	SS	40 x 8	42 x 9	24
	44 x 10	SS	44 x 10	.....	24

All dimensions in inches.

The list of tire and rim sizes revised in accord with the proposal of the Division is given in the table. The Division recommends that the proposed list be used by passenger-car and motor-truck designers to select tire sizes for apparatus not yet in production, or at such a time as a change to a recommended size can be logically made.

Another development of the year was the doing away with the mileage guarantee on tires and the adoption of a standard warranty covering possible defects in manufacture. See **CHEMISTRY, INDUSTRIAL.**

RUCKMAN, JOHN WILSON. Army officer, died at Brookline, Mass., June 7. He was born at Sydney, Ill., Oct. 10, 1858; graduated at the United States Military Academy in 1883; and became major, June 30, 1906; colonel, March 7, 1912; brigadier-general, July 20, 1916; and major-general, August 5, 1917. He was the first editor of the *Journal of United States artillery*. He served in the army of occupation in Cuba from 1899 to 1901; and was inspector-general in the Philippine Islands from 1911 to 1912. During the trouble on the Mexican border he was in command of the districts of El Paso and Laredo from 1916 to 1917. From 1917 to 1918 he was in command of the southern department of the artillery; and in the summer of 1918, of the north-eastern department, Boston; and after July 21, 1918, of the North Atlantic coast artillery, Boston. Besides many technical articles in the *Journal of United States artillery*, he wrote: *The Command and Administration of the Fortress of Port Arthur during the Russo-Japanese War*. He was the inventor of many devices for use in war.

RUHR BASIN. An important industrial and mining region of Germany, temporarily occupied by the French forces in 1920 after disturbances had occurred there which the German government had not succeeded in repressing. A description of the region and an account of the incident are given in the preceding YEAR BOOK. During the year threats of occupation were frequently made in France on account of difficulties in the matter of reparations.

RUMANIA. A constitutional monarchy, situated on the Black sea; separated from Hungary by the Carpathian Mountains and the Transylvanian Alps; from Bulgaria by the Danube river; and from Russia by the Pruth river. Capital, Bucharest; before the war consisting of the former principalities of Wallachia and Moldavia which had been united since 1861, and of the territory of the Dobrudja, but as a result of the war Bessarabia was joined to it in March, 1918; Bukovina in November, 1918; and Transylvania in December, 1918. Area before the war, 53,489 square miles; population, including the territory taken from Bulgaria by the treaty of Bucharest, August 7, 1913, 7,516,418. In 1920, including the additions resulting from the war, the area was given at 122,282 square miles; and the population, at 17,393,149. For population by divisions see preceding YEAR BOOK. Chief cities with their populations: Bucharest, 308,987; Chisinau, 114,100; Czernowitz, 87,128; Ismail, 85,600; Jassy, 76,120; Galatz, 73,512. There is great racial diversity, especially in the Dobrudja territory where many Turks and Tatars are found in addition to Bulgarians, Russians, and Germans. In central Moldavia and eastern Transylvania many Magyars are found; and in southern Transylvania and the Banat there are numerous Saxons and Suabians. The movement of population in 1918 was as follows: Births, 103,072; deaths, 297,310; marriages, 57,345. Education is free and compulsory. In 1918-19 the elementary schools numbered 5764, with 11,088 teachers and 692,896 pupils. There are 4 universities, namely, at Bucharest, 289 teachers and 4644 students; at Jassy, 172 teachers and 952 students; Cluj in Transylvania (founded in 1919), 1980 students; and at Czernowitz in Bukovina (founded in 1920).

PRODUCTION AND COMMERCE. The chief crops are: Corn, wheat, oats, barley, and rye. In 1920 the area under corn was 4,051,494 acres and in 1919 the production was 2,597,000 tons. The area under wheat in 1920 was 2,095,890 acres and the production in 1919 was 1,320,000 tons. The acreage under forests was about 18,750,000. The chief minerals are: Lignite, salt, petroleum, and iron and copper ores, and the total output in 1919 was 919,847 metric tons. The chief exports in 1919 in respect to value were: Petroleum and bitumen; vegetables, flower seeds, and plants; mineral water and salt; timber; and other manufactures. The chief imports were: Vegetable fibres and their manufactures; cereal and cereal by-products; wool and hair and their manufactures; ready-made clothing; hides and their manufactures; mineral food products. The trade in 1919 was given as follows: Imports, 3,582,945,633 lei; exports, 103,891,198 lei (1 leu = a franc).

FINANCE. The budget for 1920-21 was as follows: Revenue, 6,115,920,000 lei; expenditure, 6,036,171,967 lei. The public debt, April 1, 1921, was 20,311,293,312 lei, exclusive of the proportions of the Austro-Hungarian and Russian debts assumed by Rumania which were estimated at a total of 10,000,000,000 lei. Expenditures for 1921-2 were estimated at 7,708,477,296 lei.

The Rumanian monetary unit, the leu, which at par has a value of a franc (in United States currency, 19.3 cents) was quoted on December 10 in New York at between .8 and .9 of a cent (\$0.008417). During the six months preceding, it had followed somewhat closely the downward course of the German mark. It declined from about \$0.015 in July to a minimum of about \$0.005 at the beginning of November, after which it rose. The beginning of November was accompanied by a run on the banks in Bucharest and one of the important banks failed. The government, however, adopted a law providing for a heavy tax on capital, which promised to improve the financial situation.

SHIPPING. The merchant navy in 1919 contained 158 vessels of 71,158 tons. The vessels entering the ports in that year numbered 10,546 of 2,991,095 tons.

RAILWAYS. The railways in 1920 had a mileage of 7240. Reports indicated improvement in passenger transportation since 1918 but it was still far from adequate. The loss during the German occupation was placed at 1500 passenger cars but these were replaced by requisitions during the occupation of Budapest in 1919. The rolling stock thus requisitioned amounted to 1292 locomotives, 2000 passenger cars, 700 postal cars, 28,918 freight cars, and 2371 tenders, but the stock was said to be in bad repair. During the year Rumania was seeking to restore and rehabilitate its transportation systems. A grant of 400,000,000 lei (approximately \$44,081,600 at the normal rate of exchange) was reported made to the Ministry of Communications for alterations and improvements, the greater part of which was to be used in the repair of the permanent way and material and to the enlargement and completion of railway shops. Inasmuch as practically nothing had been done to replace the bridges destroyed during the war, many branch and some main lines were still out of service in 1921 and much was necessary to restore and standardize track. The rolling stock also was in bad condition, the pas-

senger coaches being generally without windows and upholstery. Ten million lei (approximately \$1,927,040 at the normal rate of exchange) was appropriated for the standardization of railway lines in the newly acquired provinces of Bessarabia, these lines being on the broad gauge system used in Russia, of which Bessarabia formerly was a part. In the effort to secure new equipment the Société Franco-Roumaine du Matériel du Chemin de Fer was organized in Bucharest for the manufacture of railway rolling stock. Furthermore, the Rumanian State Railway Administration ordered 150 locomotives and 1500 freight cars from Germany. In this connection it was reported that Rumanian factories acquired by Hugo Stinnes had begun the construction of 2000 locomotives for the Russian Soviet government. The programme of the Rumanian Ministry of Public Works provided for the construction of the following railroad lines: Liveseni-Bumbesti, 27 kilometres (1 kilometre = 0.62137 mile), to establish direct communication between the coal district of the Jiu Valley and old Rumania; Brasov-Nehoiias, 100 kilometres, to relieve the congestion on the Brasov-Predael-Ploestie line; and Ilva-Mica-Vatra Dorna, to connect the Transylvanian system with Moldavia and the Bukovina.

GOVERNMENT. Executive power is in the king (Ferdinand I, born, August 21, 1865; Crown Prince, Carol, born, Oct. 15, 1893) who acts through a responsible ministry; and legislative power is in a senate and chamber of deputies. The parliament at the beginning of 1921 was distributed among the various political groups as follows: Peoples Party, 215; Federal Democrats, 34; Bessarabian Peasants, 25; Transylvanian Nationalists, 21; Socialists, 19; Independent Democrats, 6; other groups, 12. The ministry at the beginning of the year was constituted as follows: Prime Minister, General Averescu; Foreign Affairs, Take Jonescu; the Interior, M. Argetoiano; War, General Rascano; Finance, M. Titulesco; Justice, Michel Antonescu; Agriculture, M. Cudalbu; Public Works, M. Petrovici; Public Instruction, M. Negulesco; Fine Arts and Public Worship, Octavian Goga; Communications, General Veleano; Labor, Francou Jassi; Commerce and Industry, Octavian Tagloanu; Transylvania, M. Mocsonyi; Bukovina, Baron Starcea; Bessarabia, Serghie Nitza. See NAVAL PROGRESS.

HISTORY. On March 30 the Rumanian government informed the Supreme Council that, while it approved a modification of the Treaty of Sévres, it reserved for Rumania access through the Straits to the Black sea. On June 8 Rumania signed with Jugo-Slavia a treaty to maintain the status of the peace treaties of Bulgaria and Hungary. On September 12 it was announced that the Soviet government had declared a state of war in Bessarabia. This government had not recognized the decree of the Supreme Council which had been ratified by the Council of the League of Nations giving Bessarabia to Rumania. For two years past Bessarabia had been under the civil administration of Rumania. Its area was about 18,000 square miles and its population about 2,000,000, half of whom claimed to be of pure Rumanian stock, and the other half consisted of Russians, Tatars, Slavs, Greeks, Armenians, Jews, and gypsies. On December 12 a ministerial crisis occurred as a result of the resignation of the minister of foreign affairs and justice and a new cabinet was an-

nounced, December 19, under M. Take Jonescu, constituted as follows: Premier and Minister of Finance, Take Jonescu; Foreign Minister, G. O. Derussi; Minister of War, General Holban; Interior, M. Camarasesco; Justice, Selian Popesco; Worship, Demetresco Braila; Domains, M. Vladesco; Industry and Commerce, M. Ormola; Agriculture, M. Demetresco; Works, M. Lucasiowits; Transportation, M. Cihodariu; Labor, M. Xen; Education, M. Mironescu; Minister for Transylvania, M. Brediceanu. See WAR OF THE NATIONS.

RUMANIAN LANGUAGE. See PHILOLOGY, MODERN.

RUSSELL SAGE FOUNDATION. A foundation organized in 1907 for the improvement of social and living conditions in the United States. The endowment of about \$15,000,000, was given by Mrs. Russell Sage in memory of her husband. The Foundation is primarily an educational institution. It does not attempt to relieve individual or family need or to duplicate the work of existing social agencies. It studies and interprets facts with regard to social conditions and methods of social work, makes this information available by publications, conferences, and other means of public education, and seeks in various ways to stimulate community action for social betterment.

The work of the Foundation is carried on through a general office, through a limited number of subsidies to other organizations, and through the following departments: Charity Organization, Child-Helping, Industrial Studies, Library, Publications, Recreation, Remedial Loans, Statistics, and Surveys and Exhibits. Departments of the Foundation, now discontinued, were with their directors: Child Hygiene, Luther H. Gulick; Education, Leonard P. Ayres; and Southern Highland, John C. Campbell.

The Charity Organization Department, Mary E. Richmond, Director, has continued its work of studying and teaching in the field of social case work. A four weeks' Institute of Family Social Work was held, as usual, for practical workers who wished to supplement experience by study. The report of one of the standing committees of the Institute, "The Training of Case Workers," was published in *The Family*. The annual conference of Case Work Supervisors was also held in the offices of the Department.

Proceeding with its investigation of the administration of marriage laws, the Department has extended its field work to some 40 cities in 14 different States. New material, which is in preparation, will be of service to social agencies, civic and legislative bodies and others concerned with the administration of marriage laws. The publication of the digest of "American Marriage Laws" in 1919, has led to increased interest in the subject of marriage law enforcement by license issuers, court officials, clergymen and others.

A book by Mary E. Richmond, *What Is Social Case Work?* an introductory description of what social case work is, why it is, and the relation it bears to other forms of social work has been completed and is now ready for publication.

The Department of Child-Helping, Hastings H. Hart, Director, has conducted its regular work for the welfare of dependent, delinquent, neglected, and defective children. The business of

the Department is carried on by means of office interviews, committee meetings, public addresses, visits to institutions, letters of advice, counsel with reference to building new institutions or remodeling old plants, information regarding standards of administration, legislative campaigns, personnel, and child welfare in general. The Department is engaged in an extensive survey of schools for delinquent children which will include about 150 reformatories for boys and girls. Since no comprehensive study of such institutions has been published in this country, it is expected that the investigation will furnish valuable material to those concerned with juvenile delinquents.

The present activities of the Department of Industrial Studies, directed by Mary Van Kleeck, centre in the investigation of various forms of employees' representation. The purpose of these studies is to make available, in published form, the experiences of those companies which have been experimenting in efforts to give to the workers a large share in determining the conditions of their employment.

The Department of Recreation, Lee F. Hanmer, Director, in addition to its usual functions, which comprise answering inquiries about problems of local recreation and legislation, lending lantern slides, helping with information on local undertakings and keeping in touch with progress in the field of public recreation, has given special attention to community centre development and to work with New York City recreation agencies and organizations for better film exhibitions. *The Community Centre*, official organ of the National Community Centre Association, was edited by the Department, and a pamphlet was issued by Clarence A. Perry, Associate Director, entitled "Ten Years of the Community Centre Movement." The Department has been interested in the development of several New York organizations which are seeking to improve public recreation facilities. It promoted for a season, as an experiment, a Registered Acquaintance Dancing Club, which has now become self-supporting. Through the New York Drama League, attention has also been given to the development of the Little Theatre movement. A study of the motion picture industry, which includes an intensive survey of local efforts to establish censorship, is in process. New publications of the Department are: *Sources of Information on Play and Recreation (Revised)*; *Contributions to Community Centre Progress*; and *Motion Pictures for Schools, Churches, Clubs and Community Centres*.

The Department of Remedial Loans, in connection with the Uniform Loan Bill, has carried on its usual legislative work. The bill was enacted in Iowa, and campaigns which were successful only in arousing public interest were conducted in Michigan and Minnesota. The Department has continued its work to promote credit unions and assisted in the reorganization of the New York State Association of Credit Unions. An investigation of saving and loan associations is still in process.

The Department of Statistics' work, directed by Ralph G. Hurlin, is twofold: the first is a practical review of material prepared for publication by the Foundation; the second is statistical research which is at present centred upon a study of the change in the economic condition of the American workingman during the development

of industry in this country. Articles by Dr. Hurlin, which embody the results of phases of various researches of the Department were published during the year in *School and Society*, the *Annalist*, the *Journal of Heredity*, the *School Board Journal* and *World Agriculture*.

The Department of Surveys and Exhibits immediate concern, Shelby M. Harrison, Director, is studying the methods employed in community projects involving the collection and educational use of facts, advising with those facing practical problems in these fields and spreading chiefly through its publications, the information and experience thus gained. In working out methods for making surveys and of interesting the public in social facts, the Department is in touch with many social agencies. One new book, *Social Conditions in an American City*, by Shelby M. Harrison, was issued during the current year. This is a summary of the findings of the Springfield (Ill.) survey, with the recommendations made for improving conditions and a description of methods used in making the survey. Several studies are in process, among them, *Public Employment Methods*, *Social Welfare and Educational Publicity*, the *Social Survey Handbook*, and the *Survey Bibliography and Source Book*. *Arts and Crafts of the Homelands*, by Allen Eaton, a book which describes two notable exhibits of the native arts and crafts of immigrant people in America, is now ready for publication.

A special library, open to the public, containing over 20,000 books and about 63,500 pamphlets on social subjects is maintained by the Foundation. Classes of books in which the library is especially strong are: child-welfare, medical inspection, school feeding, public health, garden cities, town planning, industrial problems, penology, and the care of the defective. The library receives 250 periodicals and keeps complete files of proceedings of national and international conferences, as well as Federal, State and institutional reports. The service of the library includes bibliographical help, ranging from two or three titles to a comprehensive bibliography, furnished upon request. The library issue bi-monthly bulletins containing bibliographies on social questions. New numbers in the series are: *American Foundations*, *Community Health*, *Books on Social Subjects* (published in 1920), *Financial Federations and Coöperation*. The most recent publication of the library is the *Social Workers' Guide to the Serial Publications of Representative Social Agencies*, by E. M. Rushmore. This is a checklist of the publications of 4000 institutions and organizations, arranged alphabetically and by subject. It also contains a selected list of periodicals of value to social workers and libraries. The librarian and Director of the Department of Publications is Frederick W. Jenkins.

The trustees of the Foundation are: Robert W. de Forest, President; Mrs. William B. Rice, Vice-president; Frederic A. Delano, John H. Finley, Charles D. Norton, Miss Louisa Lee Schuyler, Mrs. Finley J. Shepard, Dwight W. Morrow, and John M. Glenn, who is also Secretary and General Director. Headquarters are at 130 East 22d Street, New York.

RUSSIA. A republic, officially entitled the Russian Federative Republic (familiarily known as the Russian Soviet Republic) stretching over a vast area in eastern Europe and northern Asia;

boundaries unsettled at the close of the year on account of incomplete arrangements with border states. (See below under *History*, and the articles, ESTHONIA, FINLAND, LATVIA, LITHUANIA, POLAND, GEORGIA, ARMENIA, AZERBAIJAN, UKRAINE.)

AREA AND POPULATION. The area of the former empire was 8,417,118 square miles; population (1915), 182,182,600. The population according to the census of August 20, 1920, was about 136,000,000, of whom 53 per cent were females; as compared with 94,000,000 in the same area at the 1897 census. The population of Petrograd, the capital, in 1915 was 2,318,645; and of Moscow, 1,817,100. Subsequent estimates were made by the same authorities, as of July 1, 1921. According to the results, reported in the Bolshevik press, the population of Soviet Russia in 1921 was 130,707,600. This includes the Ukraine, Caucasus, Turkestan, and Siberia (apparently, however, not Eastern Siberia, which was under the Far Eastern Republic and not federated with the Moscow government), but of course did not include territory which had passed to Finland, Poland, Esthonia, Latvia, Lithuania, and Roumania.

No official census was taken by the old Russian government subsequent to 1897, but the changes in population were estimated each year by comparing the statistics of births, deaths, and migration. Difficulty in comparison of these prewar estimates with the recent census arises from the changes in boundaries. It was impossible from available information to distinguish exactly the prewar (estimated) population of the parts of certain Russian districts (called "Governments") which had been divided between Soviet Russia and other countries. Calculating for these parts as closely as possible, the population of the territory corresponding to the present Soviet Russia was, on Jan. 1, 1915, about 148,910,000. An error of not more than two or three million can exist in this figure by reason of inaccuracy as to the territory included. If, therefore, the prewar official government estimates of population be taken as correct and also the census of the Soviet authorities, it would appear that there had been a decrease of about 18,000,000 in the population since the beginning of the war. In view of the fact that, prior to the war, the population was rapidly increasing (for prewar Russia as a whole from 128,924,000 in 1897 to 182,183,000 in 1914), this decrease is striking. Owing to the difficulties of collecting statistics in a country like Russia, too great accuracy should not be attributed either to the prewar population figures or to those for 1921.

EDUCATION. Education is free and compulsory, and one of its important features under the Soviet government has been the introduction of the so-called unified labor schools, consisting of two grades, one for children between eight and twelve, and the other for children between thirteen and sixteen. The pupils have been provided with free lunches and the necessary books and apparatus. The schools in 1919 numbered 63,317 with 4,796,284 pupils; as compared with 47,855 schools in 1911 with 3,060,418 pupils. Schools were secularized along with other educational institutions by the decree of Dec. 28, 1917. The universities include those of: Moscow, Petrograd, Saratov, Tomsk, Perm, Kazan, Irkutsk, Nijni-Novgorod (established in 1918); Smolensk, Jaroslav, Orel, Kostroma, Tambov, Astrakhan, Tashkent, Samara, Simbirsk (established in

1919); Ekaterinburg, Ekaterinodar, Veliki Ustvig (established in 1920). Besides the universities there are various institutes of economics, medicine, philology, and schools of technology and for the education of teachers. The educational system is centralized under the commissariat for education which took the place of the former ministry of popular education, embracing under its jurisdiction various artistic and musical institutes and the state theatres. Partial statistics on illiteracy down to Oct. 1, 1920, showed that out of a total of 5,769,956 illiterates, 325,083 had been taught to read and write in schools especially designed for the instruction of the illiterate—established since the beginning of 1920.

The following more recent information was given out in respect to education by the Russian Educational Commission in Berlin. In the first place, kindergarten teaching, in which respect Russia was the most backward of the civilized countries before the war, had advanced greatly. In 1914 there were only a few public kindergartens. In 1921 there were 6000 attended by 350,000 children. In 1914 there were 600 homes under the supervision of the Empress in which young children were cared for to the number of about 30,000. After the revolution they were transferred to the Commissariat of Public Education and in 1921 there were 3000 such homes, in which 360,000 children were maintained. As to the number of orphans cared for by the state, in February, 1917, they were placed at 3784; in October, 1917, at 4890; in 1918, 20,000; in 1919, 37,000 and in 1921 70,000. The public schools of the first class, according to the last census before the war numbered 47,855, with 3,000,000 pupils and 74,000 teachers. In 1918-19 they were placed at 63,617 with 4,800,000 pupils and 150,000 teachers. The number of illiterates during the first year of the Educational Commission's activity was reduced by about 2,700,000 of whom 25,000 were in Petrograd, 19,000 in Moscow, 40,000 in the Tambov government. The secondary schools were vocational in aim, seeking to draw pupils into productive work. Construction of primitive shops was undertaken as a means to this end in the provinces where access to industrial plants was impossible. The difficulty in providing this form of secondary education was serious. The former secondary school was of no use for the purpose and secondary education on this new basis had to be created anew. The average number of secondary pupils decreased considerably after the revolution and while the population of school age in Russia was placed at 6,000,000 there were in 1921 only about 350,000 pupils in the secondary schools. As to the higher technical education there were 67 institutions with about 39,000 students. The universities numbered 19 with about 100,000 students of whom over half were medical students. Both the medical students and all other technical students formed part of the new Russian army. Of the higher education for teachers, there were 60 institutions with about 12,000 students. There were also special three-year courses with 20,000 students and various shorter courses. Workmen's universities attached to the regular universities numbered 59 with 22,500 students.

PRODUCTION. After 1916 the state maintained a monopoly of grain, of which the amount collected compulsorily in 1919-20 was 260,000,000

poods; and for the first eight months of the fiscal year, 1920-21, 275,000,000 poods. Live stock in 1919 was as follows: Sheep, 15,910,000; horned cattle, 9,433,000; horses, 6,214,000; pigs, 1,584,000. The cotton production in 1920 was 847,000 poods and in 1921 (estimated), 1,500,000 poods. The rich mineral resources of the country have never been developed, but mining has steadily increased of late years. The following figures for the production of iron foundries (excluding Poland) were supplied by the United States Bureau of Foreign and Domestic Commerce. The average annual production for the 10-year period, 1906 to 1915, was about 195,000,000 poods (62 poods equal 1 long ton). Practically the same amount was consumed. During most of this period production increased steadily, reaching its highest point, 257,000,000 poods, in 1913, after which it declined as follows:

Year	Siberia, poods	Urals, poods	Middle Russia, poods	Total production, poods
1916.....	176,000,000	46,000,000	10,000,000	232,000,000
1917.....	136,000,000	45,000,000	9,000,000	190,000,000
1918.....	17,000,000	14,000,000	3,000,000	34,000,000
1919.....	.....	2,000,000	2,000,000	4,000,000
1920.....	900,000	5,000,000	1,500,000	7,400,000
1921.....	(1)	4,500,000	1,500,000	* 6,000,000

¹ Not known.

^{*} Exclusive of Siberia's production, if any.

It was estimated that in 1922 the output would fall to about 3,000,000 poods, because of the lack of wood in the Urals (only 1 out of 65 blast furnaces in southern Russia was in operation at the close of 1921). This would mean nothing less than a catastrophe for industry and especially for the railways, whose stock of metal had diminished as follows: Nov. 1, 1918, 44,000,000 poods; Jan. 1, 1919, 41,000,000 poods; Jan. 1, 1920, 27,200,000 poods; July 1, 1920, 38,900,000 poods; Jan. 1, 1921, 8,900,000 poods. The government programme for 1922 called for a "normal" production of 13,400,000 poods and a maximum of 24,700,000 poods, necessitating an increase of workers in the Ural district from 38,000 to 60,000 and in South Russia from 40,000 to 60,000, together with a great increase in the wood output. The coal industry is situated in four regions, namely: Donets, the Moscow District, the Urals, and Siberia. In 1920 the production in the Donets basin amounted to 4,413,000 long tons; in the Moscow district, 549,500 long tons; in the chief district of the Urals, 258,600 long tons. Figures for the other districts were not available. Reports indicated a decline in the number of workmen employed and in their efficiency. The following table shows the industrial production during the year 1920 in percentages of prewar output:

	Per cent
Pig iron.....	2.0
Copper ore.....	.6
Iron ore.....	2.0
Manganese ore.....	2.9
Salt.....	15.0
Rubber industry.....	5.0
Watch industry.....	15.0
Paper industry.....	20.0
Sugar industry.....	5.0
Printing.....	15.0
Production of coal.....	20.0
Cotton spindles operating.....	3.0
Woolen cloth.....	4.0

It was thus estimated that industry in general had decreased over 90 per cent.

ECONOMIC CONDITIONS. The Soviet system has been fully described in preceding YEAR BOOKS, but a brief summary may be here given. Its central principle is that of state ownership and control of the means of production, distribution, and exchange. The nationalization of trade and industry was largely effected during the first eight months following the November revolution (1917). An early result of this change was great confusion on account of the lack of effective machinery for organizing production, and on June 28, 1918, it was provided by decree that, while the state should take over the large and well equipped plants, the minor establishments should be left to private industry. Figures for April 1, 1920, showed that out of 6,775,000 industrial establishments with 1,185,542 employees, 4141 with 983,049 had been nationalized. The chief economic authority has been the Supreme Economic Council, consisting of an executive board of eleven members, including representatives of the government, trade unions, and economic bodies. Under it are about fifty departments. Locally the control has been distributed among provincial and district economic councils, constituted in the same manner as the central body, and among central boards for each branch of industry. The central boards have been subdivided in turn into syndicate boards representing the respective groups of allied industries.

The famine situation is described in other paragraphs (see *History*, below). In general it arose from the drought which, however, was aggravated by the fact that agriculture had fallen into decay and that the transport system was in confusion. Within the famine area reports in the spring showed that only 58 per cent of the acreage cultivated the preceding year in the province of Samara was sown in 1920, and that in the province of Kazan there was no sowing at all. Aside from this there had been a steady decline in agricultural production after the Bolshevik revolution on account of the insecurity of the farmers and the fact that the urban population produced few goods for exchange. The following information as to economic conditions in the summer was supplied by the United States Bureau of Foreign and Domestic Commerce:

There was such deterioration of transportation that there was doubt as to ability to move the local surpluses in the richer grain-producing provinces in Siberia and the south to those areas which normally depend upon them. The Volga region is even less accessible to transport of relief from abroad through the seaports than from Siberia. The North Russian shortage was due not so much to local famine as to general agriculture decadence and especially to breakdown in transport from the south and east. This area is nearer seaboard and can be relieved to some extent from the outside. The decadence in fat production was even more general and more acute than in breadstuffs owing to the requisition of animals and the diversion of animal feeds to breadstuffs. Consequently children were suffering more acutely in many sections than adults. Out of a total of 19,106 locomotives in good condition before the war, there were in 1921 from 5500 to 7650 reported in working order by different authorities, or a decrease of motive power by 60 to 75 per cent.

Of that number approximately 1000 were idle owing to lack of fuel. Serviceable cars were reported at from 150,000 to 286,000, or a decrease of from 48 to 70 per cent of the prewar number. The roadbeds were reported in very bad condition, and if large repairs were not made at an early date considerable sections would have to be closed to traffic. According to the latest estimate at least 25,000,000 ties must be replaced and the programme called for only 5,000,000 replacements. A considerable mileage of branch lines was removed and used for repair material (see *Railways*, below). The fuel situation was very serious. Cessation in production of coal by 80 per cent and the deterioration of the mines forced the railways to depend much more upon wood. Such wood had to come from the forest of northern Russia, and the haul was too long for supply to southern Russia railways. It was estimated that the value of the gold in the possession of the Soviet government on August 1 was \$19,040,200. The total value of the gold exported from August 2 to 10 was \$17,775,889, and it was estimated that the balance on hand on August 10 was \$1,264,311.

COMMERCE. During the first six months of 1921 the official statistics of the Russian government gave the imports at 11,369,000 poods or 183,371 long tons and for the 8½ months from April 18 to Dec. 30, 1920, at 5,223,357 poods or 84,247 tons. In 1921 the imports came for the most part through Yamburg on the Estonian frontier and through Murmansk and Petrograd. Of the imports in 1921, 37.1 per cent were foodstuffs as against 23.1 per cent in 1920. Fuel was 17.3 per cent against 43.5 per cent in 1921; and metal products 21.3 per cent in 1921 against 14.6 per cent in 1920. Exports during the first six months of 1921 were 2,602,863 poods or 41,981 tons and for the 8½ months between April 18 and Dec. 30, 1920, 655,246 poods or 10,568 tons. The chief class of exports in 1921 was raw materials, constituting 93.6 per cent as against 59.8 per cent in 1920. Exports of foodstuffs in 1921 made up 6.1 per cent of the total, as compared with 40.1 per cent in 1920.

The total trade of the United States with the territory comprising the former Russian empire (except Finland and Poland) amounted in the calendar year 1920 to \$41,208,304, of which \$12,480,586 represented imports from Russia and \$28,727,718 American exports to Russia. This 1920 total, if increased by the value of trade with what was Russian Poland, doubtless would exceed the normal prewar figures of the trade for 1913 (\$51,286,777), and not fall far short of the trade of 1919 (\$92,099,273). The heavy trade of the war years, 1915-17, reached its highest point (\$479,126,949) in 1916, decreased to \$439,024,890 in 1917, and sank to its lowest point (\$28,095,525) in 1918—the year which witnessed the establishment of the Soviet régime in Russia and the separate organization of Poland and the three governments comprising the former Baltic Provinces. The total trade for the first six months of 1921 amounted to \$13,297,135, of which the imports from Russia constituted \$693,934 and the American exports to Russia \$12,603,201. This is far below the corresponding period of either 1919 or 1920. For the first six months of 1919 the total trade was \$42,438,915, of which \$2,974,803 represented imports from Russia and \$39,464,112 exports to Russia; for the corresponding period of

1920 the total trade amounted to \$32,064,802, of which \$8,554,886 constituted American imports from Russia and \$23,509,916 the American exports to Russia. In the normal prewar year, 1913, the trade of the United States with European Russia, as regards both imports and exports, greatly exceeded the trade with Asiatic Russia. In 1916, when the war trade reached its highest point, the imports from European and Asiatic Russia did not differ so greatly in value; and the exports, which had increased enormously, showed an Asiatic figure by no means so low in proportion to the European as in 1913. In 1918, when the total trade with Russia territory was very low, the imports from European Russia were practically twice as great as from Asiatic Russia, while the exports to both sections were quite similar in amount.

RAILWAYS. The railway mileage was given in October, 1917, at 34,000. On the basis of semi-official information it was stated during the year that the roadbed on the main line of the Trans-Siberian Railway was apparently in good condition, as section hands and trackmen employed under the old régime had remained at their posts, despite arrears in their pay, and had made the necessary repairs in track ballast. The telegraph lines also were in good condition, and fully half the poles had been renewed since 1918. It was of course admitted that the rolling stock of the railways was in a very unsatisfactory condition, chiefly due to lack of spare parts for repairs, this being especially true of locomotives, and the yards in practically every terminal were filled with locomotives that had been junked. There was apparently a large supply of box and gondola cars, although many of them had been requisitioned on sidetracks to house soldiers and in some cases refugees. There was great shortage of passenger cars, and all of them were in bad condition.

During the year it was said that trains were running regularly three times a week from Irkutsk to Omsk, taking four days for the journey, and to both Petrograd and Moscow, requiring from four to five days each. A large number of the passengers on these trains were Soviet officials, as it was exceedingly difficult for civilians to secure permission from the authorities to travel. A large number of civilians, however, were traveling with their possessions in freight cars in both directions. In European Russia it was reported that the north route to Perm and the routes from Moscow to Petrograd, Reval, and Riga were in fair condition, but the southern routes to the Urals and many of the others in central and southern Russia had been partially or completely abandoned. During the year a German commission was in Moscow negotiating for the operation of some of the railway lines. Naturally the government was seeking repairs to equipment and it was reported that the Balto-British Shipyard Company, Reval, Russia, would carry on the repair of one thousand locomotives for the Russian railways during the ensuing five years.

DEFENSE. A workers' and peasants' army of volunteers was established by government decree, Feb. 1, 1918. The discipline of the Red Army which was at first unsatisfactory steadily improved under the necessities of warfare. A system of inspection was organized and rigorously carried out for the purpose of making sure of the loyalty of the officers and troops. The success

of the Red Army against the various reactionary movements down to and including those of General Wrangel (1920) indicated the efficiency of the military system, and by January, 1921, no hostile force of any importance existed within the Soviet limits. Supplementary to the Red Army is the militia, based on the principle of universal military service beginning at the age of eighteen. Full and exact details for the navy were not available. See NAVAL PROGRESS.

GOVERNMENT. At the head of the government is the Central Executive Committee of Soviets, elected by the All-Russian Congress for a period of three months, but subject to recall at any time by the Executive Committee of the Peoples' Commissaries, and this applies also to the members of the government. The Council of Peoples' Commissaries is directly dependent upon the All-Russian Congress. It was constituted in May, 1921, as follows: President, M. Vladimir Ilich Ulianov-Lenin; Foreign Affairs, M. Chicherin; War and Marine; M. Trotsky; Finance, M. Krestinsky; Health, M. Semashko; Posts and Telegraphs, M. Liubovich (acting); Ways and Communications, M. Dzerzhinsky; Supreme Economic Council, M. Rykov; Agriculture, M. Ossinsky (acting); Food, M. Tsuriupa; Justice, M. Kurasky; Social Welfare, M. Vinokurov; Labor, M. Schmidt; Education, M. Lunacharsky; Nationalities, M. Stalin; Workers' and Peasants' Inspection, M. Stalin; Home Affairs, Extraordinary Commission, M. Dzerzhinsky; Foreign Trade, M. Krassin.

HISTORY

FAILURE OF RADICAL POLICY. The belief that it was too early to put into effect a complete communistic system had been indicated in governing circles in 1920. Definite steps were taken in 1921 toward a return to capitalism. At the tenth communistic congress at Moscow early in March, Lenin declared that Russia must compromise with the capitalist classes and must abandon certain principles of administration. He proposed a long list of changes, including the following which were adopted: Greater freedom in the exchange of goods; abandonment of compulsory requisition of farm products; a greater degree of private initiative in industry; and greater liberty for the coöperative societies. He contended that the approach to pure Socialism must be by way of state Socialism which must compromise at present with the private system of production. The stricter Communists opposed these changes as conceding too much to the peasant and middle classes. Lenin, however, contended that the peasants were the mainstay of the state, and that peasant discontent must be allayed, or there would result a war between the peasantry and the proletariat. In the course of the year Lenin, Trotsky, Tchitcherin, Krassin, and other Bolshevik leaders repeatedly explained the change in economic policy. They said that it was necessary on grounds of expediency and that it did not affect the ultimate aims of the Soviet government. The ideas of the governing class remained the same, but at present Russian society could not dispense with capitalistic methods. It must appeal to the personal interest of the peasant. Taxes in kind would be levied, and after the government had taken what it needed, the remainder could be marketed by the

farmers. It was announced that the basis of foreign policy would be coöperation with the capitalistic states. Private enterprises would now be permitted and factories could be opened under private management. Nevertheless ownership would still be fixed in the Soviet government which would control also all foreign trade, but the right of importing machinery and other necessities would be allowed to foreigners and they would be allowed to export manufactured products. Goods from abroad must be paid by foreign credits, and not by money taken from Russia. The government had for its chief aim increase in production. On September 23 Leo Kamenev, head of the Moscow Soviet, declared that with the exception of railways and metallurgical, textile, and fuel resources, industries would be returned to private ownership. He had already predicted a complete change in the national and industrial life, and he now declared restrictions on private commercial and industrial activity would be at once removed, the government having realized that it was impossible to rebuild society at one stroke. The present policy was to be considered as a step in the gradual evolution of society toward the Socialistic stage. Lenin returned to the subject in October, saying that the real meaning of the government's new economic policy was that it had met a great defeat in its plans and was now making a strategic retreat. There had been criticism of the government's course by the strict doctrinaires of the Communist party, and Lenin's speech delivered at Moscow October 18 was in answer to it. He said they had thought that the peasants would supply food for the support of industrial workers, but in this they had been mistaken, and it was necessary to build on a new foundation. It should be regarded, however, in the light of a mere retreat and it did not mean that the cause was lost. The supplying of manufactured goods to the country and its direct relation with the problem of reconstruction of the cities was the chief cause of the economic and political crisis of the spring of 1921. On the following day, in the course of another address, as declared that the Russians must face the fact that they were reëstablishing capitalism and it was a question whether the peasantry would follow the capitalists or the Communists. The present problem was to make the capitalist system subject to the state and to convince the peasantry and workers generally of the necessity of the government's aims. The present return to capitalism was not, he said, a reëstablishment of private ownership, but a necessary step in the carrying out ultimately of the communistic programme.

In speeches and articles in November Lenin explained in more detail the new economic policy of the country and the reasons for adopting it. He said that as far back as 1918, the possibility of these changes had been announced. After the revolution the military difficulties had at once arisen and had continued during the next two years. It had been impossible to carry out the economic programme in the circumstances. It had been supposed that the peasants under requisition would supply the government with the needed quantity of food which would be distributed among factories and workshops and thus admit of communistic production. This expectation was not realized. The productive forces of

the country were checked and the result was the economic and political crisis of the spring of 1921. It must be admitted that this has been a severe defeat to the cause of Communism. It was therefore necessary to change the economic policy of the government. The new policy involved the change from the requisition system to an impost and was thus a definite step backward into capitalism. Concessions had been made to foreign capitalists and leases had been granted to private capitalists. Under the new plan the peasant would enjoy free trade for his surplus products that were not taken by the tax. The peasants made up the largest part of the population. The main question was whether the peasants would follow the groups who wished to build up a Socialistic society or would insist on a return to capitalism. He said that it was evident in spite of the famine that the general condition of the people had improved. If capitalism should return, industrial production would increase and the proletariat would increase with it. The question was which of the two systems would succeed—whether the Communists or the capitalists would organize their system first. Theories and idealism must be abandoned. The military enemy had been defeated and the real enemy at present was the class that desired a return to capitalism. In view of the vast illiteracy of the peasants it would be difficult to make the people realize this. The task before the communistic party was to make the public understand that the real enemy was anarchistic capitalism and anarchistic trade exchange. The bourgeois class which was far stronger in other countries than in Russia was supporting the Russian bourgeois class in all the countries of the world. Although the proletariat had conquered in Russia it was still weak in international affairs. It must unite all the working men and peasants of Russia. There could be no immediate change to Communism. It must be gradually built up on the self-interest of the peasants. The dictatorship of the proletariat meant a long and bitter struggle but the principles on which it rested were economically sound. The entire economic structure must be based on self-interest. As to the government it must be more severe than it had been before. The necessity of this severity had been demonstrated in the case of the Red Army which finally had been brought to a discipline not inferior to that of the former army. The government had been blamed for employing severe measures and even shooting offenders, but it had done so consciously and it had been justified by the results. It must be remembered that Soviet Russia impoverished with its long struggles was surrounded by countries hostile to its social system and that the capitalistic world outside Russia was developing faster than Russia and was using all its forces against it. Russia was too weak for a direct attack on capitalism. The state must learn to trade in such a manner that industry shall meet the needs of the peasant.

"The capitalists can stick to their hypocrisy and summon men to national defense. They may invoke the American fatherland against the Japanese, and vice versa; the French fatherland against the English, and vice versa. Keep on drawing up manifestoes on how to prevent imperialistic wars—that of Basle in 1912 may serve you for a model, ye pacifistic lesser bourgeoisie, ye knights of Internationale 2 and 2½."

"The first communistic revolution has snatched a first one

hundred millions of people from the horror of imperialistic wars and the servitude of the régime from which these are derived. Subsequent revolutions will liberate the rest of the human race.

"The last part of our task, the most important and difficult and, up to now, far from accomplishment, is to lay the economic foundations of the new socialistic society which will replace the destroyed feudalistic society and the shaken capitalistic society. In this, the most important and difficult work, we have made the most mistakes, suffered the most setbacks; nor could this have been otherwise. But we are at work; already our new economic policy is correcting some of our mistakes; we are learning to build without flaws the socialistic edifice in a country where the small peasant proprietor predominates.

"We shall continue our work to the end, despite the fact that economic and political conditions in the world make this task more difficult than we imagined. But, no matter what may be the cost, sufferings, misery, ruin or famine during the period of transition, we shall not allow ourselves to be discouraged by anything, and we shall be able to assure the ultimate triumph of our cause."

The chief features of the new programme, as announced at the end of the year, were the partial restoration of free trade in agricultural production; the substitution of a labor tax for the system of requisition of labor; the compensation of state employees according to service rendered instead of by a uniform rate of wages; and the leasing to private individuals of certain industrial plants which had been controlled by the state. It was further promised that state enterprises would henceforth adopt commercial methods and pay private producers according to the market value of services and products.

THE FAMINE. Famine conditions prevailed throughout the year. According to accounts published in the summer the famine area included the entire lower Volga basin; the country through which flows the Don river; the region around the lower course of the Dnieper and Bug rivers; Astrakhan, Samara, Saratov, Ufa, Kazan, Kuban, the Don Cossak region, Taurida, Kherson, Ekaterinoslav, and parts of other districts—the total covering an area of about 600,000 square versts, with a population of about 15,000,000, of whom 13,000,000 were peasants. Many estimates were made of the number of persons destined to starvation even if outside aid were received, some of these being as high as 2,000,000. Conditions were reported to be especially bad in Saratov and Samara, where it was said the people were dying in vast numbers, being driven to the eating of grass, bark, etc., as substitutes for food. The Soviet government attributed the calamity to the long period of warfare which they blamed the capitalist nations for continuing, and showed a suspicion of the Allied nations when they proposed to send commissions to investigate the conditions. The Russian government appeared to suspect that such a movement on the part of the Allies might result in counter-revolutionary attempts. A scheme proposed by Dr. Fridthof Nansen, who had been long engaged in the work of repatriating war prisoners from Russia under the League of Nations, met with more approval from the Soviet government, but he could not secure the consent of the authorities to an independent distribution of provisions. While the Soviet government welcomed his proposal it refused to allow him a free hand in distribution. The Russian novelist, Maxim Gorky, had established a nonpartisan relief committee, but this was dismissed in September on the ground that it was being used by outside Powers as a means of injuring the government. Gorky and other prominent men issued an appeal

to the world and there was especial hope that this would find support in the United States. In this they were not disappointed. The American Secretary of Commerce, Mr. Herbert Hoover, pledged the support of the relief organization, and the Soviet leaders on July 30 consented in advance to any arrangement he might make if it were backed by President Harding and Secretary Hughes. The American political prisoners in Russia were freed and the full coöperation of the Soviet authorities was pledged to the American organization. The Russian government also accepted the demand of Mr. Hoover for an entirely free hand in distributing food supplies. On August 10 the representative of Mr. Hoover conferred with the Russian representative M. Litvinoff, and on August 13 an agreement was reached on methods, which included: Free movement of food from the ports to the consumers, the expense to be borne by the Russian government, but the materials of transport, etc., to remain in the hands of the relief administration. By the end of September the relief organization under Hoover whose leaders were Professor Vernon Kellogg and Colonel Haskell had delivered 5000 tons of food in Russia, and additional supplies were regularly going forward. On September 9, it was estimated that 900,000 children were without food in the Tartar provinces, and that hundreds of men and women were starving there. But the figures were vague and conflicting. According to one of the relief officials the number of adults starving in the famine region was placed at 35,000,000. Various detailed reports were published in the press from travelers in Kazan, Samara, and Saratov which were the first centres of the famine region to receive supplies. The situation was complicated by the scattering of the starving people all over the country, and by the tendency of the famine-stricken communities to take no measures of self-help, but to depend exclusively upon the central government. In October the report of the Russian Commission of Far Eastern Relief was under discussion. Among other proposals it recommended that a commission be authorized by Congress to deliver 1,845,000 tons of grain in coöperation with the Soviet government to be used in part for the relief of the famine districts and in part for seed, the loan to be repaid in kind beginning in 1925. The report also recommended an association of American manufacturers of agricultural machinery which should be organized under export trades acts for the purpose of supplying Russia with \$500,000,000 worth of agricultural machines and that similar groups be formed for supplying locomotives, railway material, bridge iron and steel, etc. The Commission believed that Russia was solvent and declared that it had found the Soviet officials earnest and hardworking men, as well equipped for their duties as the average officials of any country. The report declared that the economic blockade of Russia had inflicted a wrong on the country and that the United States bore a share of the blame. It did not advocate the policy of supplying simply immediate relief for the 20,000,000 inhabitants of the Volga famine districts but held that any measures, if they were to accomplish permanent results, must include the supply of food sufficient to enable the peasants, who made up 85 per cent of the population in the famine area, to live on their farms until the next harvest;

sufficient seed to sow the acreage of 1920 in the Volga region; sufficient agricultural implements for sowing and harvesting, etc.; draft animals to take the place of those lost on account of military service or famine, and sufficient means of transport to insure rapid transportation. The Commission estimated that of the 20,000,000 inhabitants of the Volga region, about half were suffering from hunger and about 3,000,000 had left their homes and were wandering over the country in search of food.

The American intervention for the relief of the famine sufferers was followed by a more friendly attitude on the part of the United States as reflected in the press toward the Bolshevik government, and many articles began to appear in quarters hitherto unfriendly to Russia pointing to the new moderation of the Russian government, its abandonment of a part of its radical programme, and its return to the methods of capitalistic society. It was believed in the United States that confidence should be reposed in the good faith of the Soviet government. On the other hand, the movement for aid to Russia was regarded in France as simply a device for strengthening the Bolshevik government. In Russia the fact that the investigation which the Allied nations proposed was to include in its personnel a French diplomat who, while in Russia, had been charged with pro-Ally propaganda, accounted in part for the Russian refusal.

On December 23 President Harding signed an appropriation of \$20,000,000 for Russian relief. At that time it was estimated according to the relief authorities that some 27,000,000 people in Russia were in danger of starving to death. The Soviet government, December 24, promised to contribute the sum of \$10,000,000 for the purchase of supplies of food and seed in the United States within ninety days and asked for permission to send a Russian representative to supervise these purchases, which permission was granted by the American Secretary of Commerce, Mr. Hoover. In the meantime, five large ships carrying grain had sailed for Russia. See RELIEF FOR WAR VICTIMS.

FOREIGN AFFAIRS. The relations of the Soviet government with other Powers are described in more detail as regards the leading features in accompanying paragraphs and also under WAR OF THE NATIONS, but may be briefly summarised here in their chronological order: The Moscow government signed a treaty with the Turkish Nationalists, March 16. In this Constantinople was recognized as the capital of Turkey. On March 22 the treaty negotiated by Krassin in 1920 with the British government for the resumption of trade between the two countries was signed (see below). The Russian government sent a note, March 22, to the United States government, requesting the resumption of trade relations, but the Secretary of State, Mr. Hughes, replied, March 23, declining to resume relations until the Russian system of production had been organized on a sound basis. On May 27 it was reported that a democratic government had been organized at Vladivostok after the city had fallen into the hands of anti-Bolshevik troops under General Kappell. At the beginning of June the Japanese were reported to be active in the neighborhood of Korea against the Bolshevik movement in that region. Famine and cholera were ravaging the

country in the summer, and measures of relief were under discussion by the Russian and foreign governments as noted above. The International Relief Commission at a meeting in Belgium required as a condition that Russia recognize her present debts, and the Moscow government provisionally agreed to this. On October 29 the Russian government published an announcement that under certain conditions it would recognize the prewar foreign debts of the state (see below).

TRADE AGREEMENTS. The terms of the Anglo-Russian trade agreement had been determined at the close of 1920, as noted in the preceding YEAR BOOK, after the negotiations of the Russian delegate, M. Krassin, with the British government, and it was signed by the representatives of both countries, March 22. The principal features of it were as follows: Lifting immediately of the blockade by Great Britain; release of war prisoners by both governments; cessation of Bolshevik propaganda in British territory; according of diplomatic rights to official agents; assumption by the Soviet government of responsibility for the Russian debts to British subjects in return for British abstention from any plan for the seizure of Russian gold in order to pay the old Russian debt to France. The entering into this trade agreement with Russia amounted, according to the admission of Lloyd George, March 22, to a recognition of the Soviet as the de facto government. The United States, March 25, refused to enter into a trade agreement with Russia, and the year passed without official resumption of trade relations. A trade treaty, however, modeled on that of Great Britain was concluded with Germany, May 6. Canada in October declared that trade relations would be resumed with the Soviet government. On September 2, Norway signed a trade agreement, and in October, Germany, and Japan began negotiations for the resumption of trade. The question with Italy was pending at the close of the year.

To sum up the situation, while some progress was made toward resumption of trade in 1921, official sanction was not obtained from the United States, Italy, or France, and there was difficulty with Great Britain. The British government charged the Soviet government with permitting anti-British propaganda in Persia, Afghanistan, and Central Asia. This was denied in a Soviet note, September 26, in which the foreign minister, T. Tchitcherin, said the accusations were based on forgeries. This in turn was denied by the British foreign minister, Lord Curzon, November 15, who produced documentary evidence. In November a trade agreement between Italy and Russia was under consideration, but on December 5 the Italian foreign minister announced that it had failed because the Soviet representatives refused to promise to refrain from propaganda and insisted on certain political clauses in the treaty.

THE FOREIGN DEBT. Much discussion followed the interchange of notes in respect to Russian recognition of debts abroad dating from before the war. The main question was that of the debt to France, and the attitude of France may be summed up as follows: It was argued that the cancellation of the public debt had been from the first one of the chief features of the Bolsheviks' programme, having been put forward by Lenin and his partisans in 1917 when they over-

threw Kerensky, and having been frequently insisted upon in Bolshevik propaganda afterwards. The following figures were compiled by French authorities who based them on Russian sources: Before the war the interest on the national debt cost Russia about 420,000,000 rubles a year. In June, 1916, the credit of the country was sufficiently assured for the borrowing of a new loan, June, 1916, in the United States of \$50,000,000. At the time of the Bolshevik revolution the service of the Russian debt amounted to nearly a billion rubles. In September, 1921, the Bolshevik minister of finance estimated the circulation of paper rubles at 3,500,000,000,000. He further estimated that the enormous sum of 22,000,000,000,000 were required for all the needs of the state, but the printing presses were unable to provide for more than 13,000,000,000,000 or 14,000,000,000,000, so he had taken measures for the issue of bills for a large denomination, namely, bills for 1,000,000, 5,000,000, and 10,000,000 rubles. In such a grotesque situation with the currency mounting into trillions, it was obvious that the government had no means of paying its foreign bonds, nor its recent notes of October and November. As to the recognition of its foreign debt, it did not refer to any measure it intended to take in order to become solvent, and it was argued by the French that the proposal was simply a political move, looking to a conference in which the Soviet government would find occasion somehow to make an appeal over the heads of the governments to the masses of workmen throughout the world. That was the reason for insisting upon an international conference. The policy followed by the French government aimed, according to its authors, to serve at the same time the interests of the Russian people, whose complete national and economic restoration were desired by the French, and the interests of the foreign creditors. The French government believed that any attempt to obtain immediate and exclusive advantage would not only fail, but would retard the recourse to measures for the general benefit of Russia and of the world, while at the same time it would work unfairly as among the creditor countries. France, it was argued, had shown her sincerity in this latter respect. When the Russian government on October 28 declared its readiness to recognize the foreign debt, it had proposed to France a privileged treatment. France had taken most of the external loans before the war, while England, during the war, had taken for the most part the municipal loans. The French government did not accept the offer of a privileged position to the detriment of England, but declared in its reply that the recognition of the Russian foreign debt must be general, and it blamed the Russian government for overlooking the war debts and the municipal loans. It took the stand that the creditors of Russia would not be paid unless each one conscientiously respected the rights of the other.

As to the restoration of the Russian people to its national and economic life, present conditions were illustrated by the following incident: The head of a large British industrial establishment who had had much experience in Russian affairs addressed on October 12 a letter to the Russian Delegate at London, M. Krassin, after an unsuccessful attempt to operate a factory in Russia. In this he said that Russia was terrorized

by the series of communist organisations of which the most powerful one was the Secret Police. This had rallied around it not only Communists but criminals from Russia and other countries. It had constituted itself prosecutor, judge, jury, and executioner, with power of life and death over its victims, and it had developed in every city and every village a complete system of spies, informers, and *agents provocateurs*. The above summary is a fair illustration of the arguments in support of the attitude of the French as they appeared in the press.

FINANCIAL POLICY. The government insisted on a programme of economy both in the budget and in the administrative personnel. In November the finance committee adopted as the standard for future budgets the gold ruble as before the war. The new state bank was opened at Moscow, November 18. The banks had been nationalized under the Bolshevik programme, Nov. 18, 1918. As a step in the general return to the old economic system, the payment of interest on accounts, may be mentioned, and it was also decided that loans might be made henceforth to corporations and to individuals. The offer of the Russian government, October 20, to recognize the former Russian debt under certain conditions had not brought any important result at the close of the year, France insisting in her policy of nonintercourse until the Soviet government should cease foreign propaganda.

SIBERIA. Steps toward the formation of a new Siberian state were taken during the preceding year when conferences were held, looking to the union of the four governments that had been set up in Siberia. On Jan. 9, 1921, elections for a national assembly were held, resulting in the following distribution among parties: Peasants, 160; Peasant Unionists, 42; Communists, 98; Social Revolutionaries, 16; Buriats, 10; Koreans, 5. This was followed by the setting up of a provisional government under the title of the Far Eastern Republic (Chita), and composed entirely of communist officers. It encountered the opposition of General Semenov who was said to be supported by Japan, but this was denied at Tokyo. The state was on friendly terms with Soviet Russia. It sent a delegation in November to the United States for the purpose of observing the work of the Washington Conference on Disarmament during its discussion of Pacific and Far Eastern questions. See **WAR OF THE NATIONS**.

INTERNAL DISORDERS. Strikes were frequent in the early part of the year, caused for the most part by the shortage of food. In February government employees numbering about 14,000 struck for an increased bread ration, and on February 26 they were joined by the Kronstadt garrison and the sailors from the Baltic fleet. The movement spread and took on the form of a counter-revolution, the agitators demanding the calling of a constituent assembly and the right of free trade or a return to individual enterprise. Conflicts with the government troops resulted, but the movement was put down by March 15. It was described by Lenin as due to a combination of reactionaries in Russia with persons acting on behalf of foreign Powers. The labor unions which in January numbered, according to official figures, about 6,970,000 members of whom 63 per cent were manual laborers

and 30 per cent specialists, including engineers, chemists, etc., showed opposition to the government and caused much alarm to the authorities who declared, February 7, that unless a settlement were reached, the Bolshevik system would disappear. The principal hostile movements in the interior against the Soviet government in the closing months of the year were revolts in the Ukraine and in Eastern Karelia. In the Ukraine uprising occurring in November severe battles were reported in the neighborhood of Kiev. In Karelia which though largely peopled by Finns was left under Russian administration by the terms of the treaty with Finland the inhabitants set up an independent government. This resulted in accusations and disclaimers on the part of the respective governments. The region affected covered an area about 1000 square miles inhabited by a population of about 40,000 according to the Russian accounts which also declared that the army of the insurgents numbered only about 3000. But the insurrection was supported by Finland. This gave offense to the Soviet government which demanded in successive notes that Finland withdraw her support, finally in December insisting that this demand be met and that the Finnish government should cease to aid the insurgents. The December note also demanded the expulsion from Finland of General Savinkoff who had been a member of the Kerensky government and had recently been expelled from Poland. Dissatisfied with the reply from Finland to this note the Soviet government declared that if action were not taken in response to its demands the responsibility for war would rest upon the Finnish government.

ANNIVERSARY OF SOVIET GOVERNMENT. Some simple ceremonies celebrated the 4th anniversary of Bolshevik government in Russia, November 6, 7, and 8. The authorities believed that it was wiser to confine themselves to a simple commemoration instead of making a great display of Red processions and demonstrations which would tend to set revolutionary propaganda in motion. The Moscow government declared that its policy was to win the good will of foreign Powers by such measures as had recently been taken by the Foreign Minister in regard to Russian recognition of her debts abroad and the opening up of the country to foreign business men and journalists. It was hoped that this policy would make it appear abroad that the revolution was over and that economic restoration was approaching. See **SOCIALISM**.

OTHER EVENTS. The All-Russian Congress opened its session at Moscow, December 23. Early in its meetings, Lenin gave notice that the Extraordinary Commission would limit its activities henceforth to the political field. He submitted his plan of economic reform which was approved and the land reform plans were adopted, December 28. On the following day, Trotski accused Poland, Roumania, and Finland of hostile intentions and declared that the Soviet military forces would be ready to repel aggression. He condemned the Washington Conference, saying that one of its first consequences was Japan's attack on the Far Eastern Republic.

RUSSIAN LANGUAGE. See **PHILOLOGY, MODERN**.

RUTGERS COLLEGE. A non-sectarian co-educational institution of the higher learning at

New Brunswick, N. J.; founded in 1766. The enrollment for the fall of 1921 was 1850 and for the summer session of 1921, 634. The faculty numbered 103. The productive funds amounted to \$1,500,000 and the income, \$600,000. The library contained 110,000 volumes. The Horticultural Building was erected during 1920-21. The Ceramics Building was in process of construction. President, Rev. W. H. S. Demarest, D. D., LL.D.

RUTHVEN, WALTER JAMES HORE-RUTHVEN, Eighth Baron. British soldier, died in London, England, February 27. He was born in 1828 (?) and served in his youth in the Crimea. He later served in India and Abyssinia and retired in 1886. Although 76 years old when the great war broke out, he returned to his regiment, the Rifle Brigade, and served as a King's Messenger, making many trips across the Channel.

RYE. Provisional estimates published by the International Institute of Agriculture, Rome, indicated for 21 reporting countries in 1921 a production of over 793,000,000 bu., representing an increase of 37.4 per cent above the total yield for the same countries in the preceding year. The acreage was slightly but not materially larger, so that the increase in production was mainly due to a better yield per acre. While an extended summer drought threatened crops over large parts of Europe and Asia, rye being a fall-sown crop had matured sufficiently to escape serious drought injury.

The production of the leading rye-producing countries was reported as follows: Germany, 260,145,000 bu., Poland, 167,216,000 bu., Czecho-Slovakia, 54,772,000 bu., France, with Alsace-Lorraine, 44,494,000 bu., Sweden, 28,514,000 bu.,

Spain, 27,768,000 bu., Canada, 25,800,000 bu., and Hungary within present limits, 22,093,000 bu. The world's yield in 1914 and 1915 was in round numbers 1,500,000,000 bu. In 1912 and 1913 the former Russian empire produced each year a little over 1,000,000,000 bu. or approximately two-thirds of the world's yield. Germany in prewar years was also a large producer, the average annual production for the 5 years 1909-13 being recorded as 445,220,000 bu. France, with Alsace-Lorraine, for the same period produced an average crop of about 52,000,000 bu. yearly.

The yield of rye in the United States in 1921 according to estimates by the Department of Agriculture was 57,918,000 bu. produced on 4,228,000 acres at an average acre-yield of 13.7 bu. In 1920 the average acre-yield was the same but the area was greater by 181,000 acres. The farm value on Dec. 1, 1921, was 70.2 cts. per bu., and on this basis the total value of the crop amounted to \$40,680,000 bu. In 1920 the corresponding value per bushel was 126.8 cts. and in 1919, 133.1 cts. The leading rye-producing States and their yields in 1920 were as follows: Michigan, 9,702,000 bu., North Dakota, 9,340,000 bu., Minnesota, 8,160,000 bu., Wisconsin, 7,728,000 bu., Indiana, 4,340,000 bu., South Dakota, 4,320,000 bu., Nebraska, 3,722,000 bu., and Illinois, 3,276,000 bu. These States produced about 70 per cent of the total yield. The area sown to rye in the United States in the fall of 1921 was reported as 5,184,000 acres, of which nearly one-third or 1,607,000 acres was in North Dakota. The States next in order of acreage were Minnesota, Michigan, and Wisconsin. The four States together included over 60 per cent of the total acreage reported.

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SABATINI, CARLO. See **MUSIC, Artists, Instrumentalists.**

SAFETY AT SEA. During the fiscal year 1920-21 the total number of accidents to American vessels resulting in loss of life was 200, an increase of 8 over the previous year. The total number of lives lost was 330, of which 69 were passengers. Of the lives lost 159 were from suicide, accidental drowning, and other causes beyond the power of the U. S. Steamboat Inspection Service to prevent, leaving a loss of 171 lives as fairly chargeable to accidents, collisions, foundering, etc. There was a decrease of 140 in the number of lives lost as compared with the previous fiscal year. Passengers to the number of 351,720, 890 were carried on vessels required by law to make report of the number of passengers carried. Dividing this number by 69, the total number of passengers lost, shows that 5,097,404 passengers were carried for each passenger lost. There were 826 lives directly saved by means of life-saving appliances required by law.

SHIPWRECKS WITH LOSS OF LIFE. The following disasters coming in the jurisdiction of the U. S. Steamboat Inspection Service resulted in an unusually large loss of life:

Nov. 24, 1920, the steamer *Santa Rita* with the barge *W. J. Pirrie* in tow left Tacoma, Wash., bound for San Francisco, Calif. At 1.10 p. m., Friday, November 26, it became necessary for the *Santa Rita* to cut the *W. J. Pirrie* loose, owing to the heavy seas and south west gale. The barge was driven on the rocks, resulting in the loss of the vessel and crew, consisting of 20 persons.

Oct. 13, 1920, the steamer *Cayo Mambi* left the harbor of Santiago, Cuba. About 6.30 p. m., the auxiliary schooner *P. Heat*, was seen ahead slightly on the port bow, and the bluff of the port bow of the steamer collided with the port quarter of the schooner, resulting in the latter sinking a few minutes after the collision with a loss of 12 lives.

Feb. 26, 1921, off the coast of Panama, the steamship *Steel Inventor*, about 12.20 a. m. collided with the U. S. destroyer *Woolsey*. One man was killed on the destroyer *Woolsey*, and 15 men were reported missing, making a total loss of 16 lives. The destroyer sank shortly after daybreak.

March 7, 1921, latitude 49° 26' N., longitude 11° 14' W., at 9.04 p. m., the steamer *Edgemont* collided with the British steam trawler *Swan*, resulting in the sinking of the *Swan* with 6 of the crew. Five persons were saved.

August 20, 1920, at about 9.20 p. m., the up-bound steamer *Willis L. King*, and the down-bound steamer *Superior City* collided when below Whitefish Point, Lake Superior, and as a result, the *Superior City* sank within three minutes and 29 members of her officers and crew lost their lives.

May 14, 1921, in the vicinity of Whitefish Point, Lake Superior, while the steamer *Zillah* with

barges *Miztec* and *Peshtigo* in tow was running before a northwest snowstorm and heavy seas in an attempt to make shelter under Whitefish Point, the barges became adrift from the steamer, and it was assumed that the barge *Miztec* foundered with the loss of her whole crew, consisting of 6 persons.

Sept. 29, 1920, the steamer *Speedwell* foundered in the Gulf of Mexico during a hurricane. All persons on board were transferred to lifeboats, but 8 died later from exhaustion and privation.

April 11, 1921, the freight steamer *Col. Bowie*, bound from Beaumont, Texas, to Tampico, Mexico, encountered heavy weather which caused leaks to develop, rendering the vessel helpless. Cargo of vessel shifted and she sank at about 2.40 a. m. Seven of the crew were lost.

March 12, 1921, while the motor vessel *Alveta T.*, was delivering men aboard the various vessels tied up in the harbor of New Orleans, La., during a heavy fog, and with 11 passengers aboard, some of the passengers while shifting around and rocking the boat more or less in their hilarity, overturned the same, and 6 men attached to different vessels were drowned.

April 1, 1921, the steamship *Governor*, bound from San Francisco, Calif., to Seattle, Wash., collided with the steamship *West Harland*, at a point approximately 1¼ miles southeast of Point Wilson, at about 12.02 a. m. The *Governor* foundered about 30 minutes later, but in the meantime, the passengers had been transferred to the *West Harland* and later landed at Seattle. Nine lives were lost from the *Governor*.

UNITED STATES STEAMBOAT INSPECTION SERVICE. During the fiscal year ended June 30, 1921, the United States Steamboat Inspection Service inspected and certificated 8095 vessels with a total gross tonnage of 16,231,001, of which 7753 were domestic vessels with a total gross tonnage of 13,139,630, and 342 were foreign passenger steam vessels with a total gross tonnage of 3,091,971. Of the domestic vessels, there were 6437 steam vessels, 716 motor vessels, 15 passenger barges, and 585 seagoing barges. There was an increase of 44 in the total number of vessels inspected, and an increase of 609,602 in the total gross tonnage of vessels inspected as compared with the fiscal year, 1919-20. Letters of approval of designs of boilers, engines, and other operating machinery were granted to 42 steam vessels with a total gross tonnage of 1118. There were inspected for the United States Government 57 hulls and 2100 boilers. There were 2793 reinspections of vessels. Licenses were issued to 25,997 officers of all grades. There were examined for visual defects 8522 applicants for license, of whom 45 were found color-blind or with other visual defects and rejected. Certificates of service were issued to 16,949 able seamen, and 1316 were rejected. Certificates of efficiency were issued to 13,548 lifeboat men, and 1726 were

rejected. Steel plates for the construction of marine boilers to the number of 4752 were inspected at the mills, and a large amount of other boiler material was inspected. There were examined and tested 308,661 new life preservers, of which number 6107 were rejected.

SAFONOV, HENRIETTA. See *MUSIC, Artists, Vocalists.*

ST. CHRISTOPHER. See *ST. KITTS AND NEVIS.*

ST. HELENA. An island of volcanic origin in the South Atlantic twelve miles from the west coast of Africa, belonging to Great Britain. Area, 47 square miles; population (1911) 3520; estimated civil population, Jan. 31, 1920, 3468. Capital, Jamestown.

ST. JOHN'S COLLEGE. An institution of the higher learning at Annapolis, Md.; founded in 1696. The enrollment for the fall of 1921 was 159. The members of the faculty numbered 17, including one addition. The library contained 15,000 volumes. President, Thomas Fell, Ph.D., LL.D.

ST. KITTS AND NEVIS. An administrative division of the Leeward Islands (q. v.), including besides the two islands mentioned, the island of Anguilla. Area of St. Kitts, 65 square miles; and population (1911) 26,283; Nevis, 50 square miles and population (1911) 12,945; Anguilla, 35 square miles and population (1911) 4075. Chief town of St. Kitts, Basseterre (population, 8159); of Nevis, Charlestown (912). The division is under a British administrator with an executive and legislative council. Administrator at the beginning of 1921, Major J. A. Burdon.

ST. LOUIS SYMPHONY ORCHESTRA. See *MUSIC, Orchestras, Novelties.*

ST. LOUIS UNIVERSITY. A Roman Catholic institution of the higher learning at St. Louis, Mo., founded in 1829. The student enrollment in 1921 was 2618 and the faculty numbered 235. President, Rev. William F. Robison, S. J.

ST. LUCIA. One of the Windward Islands in the West Indies; a British colony. Area, 233 square miles; population (1911) 48,637; estimated, Jan. 1, 1920, 54,989. Capital, Castries, a coal station and naval base. On Dec. 31, 1919, there were 52 schools, of which 7 were Protestant and 45 Roman Catholic, with 6390 pupils enrolled. The chief products are: Sugar, lime juice, molasses, and syrup, cocoa, rum, honey, hides, logwood, lime oil, and bay oil. Imports, 1919, £222,769; exports, £431,259. It is under an administrator with a nominated executive and legislative council. Administrator at the beginning of 1921, Lieutenant-Colonel W. B. Davidson-Houston.

ST. PAUL, MINN. See *MUNICIPAL GOVERNMENT.*

ST. PIERRE AND MIQUELON. The principal islands of two groups off the south coast of Newfoundland belonging to France. Total area, 93 square miles, of which 83 were in the Miquelon group; total population, 4652, of whom 4209 were in the Pierre group. The chief industry is cod fishing, the islands being barren rock and unsuited to agriculture. Chief town, St. Pierre which is in regular steamship communication with Halifax and North Sydney.

SAINT-SAËNS, (CHARLES-) CAMILLE. A distinguished French composer, died in Algiers, December 16. He was born in Paris, Oct. 9, 1835. His precocity was such, that before he was three

years old he received from a relative systematic instruction on the piano. At the age of seven he was placed under C. Stamaty, who allowed the boy to make his pianistic début in Paris on May 6, 1846. Two years later he entered the Conservatoire, where he devoted himself to the study of the organ, under Benoist, and of composition, under Halévy. In 1851 he won the first prize for organ, and the following year entered the competition for the Prix de Rome, but without success. A second attempt, in 1864, also failed. From 1853-58 he was organist at St.-Merry, where he laid the foundations for his subsequent fame as one of the world's greatest organists. His masterly improvisations attracted such wide attention, that, when Lefébure-Wély resigned his position at the Madeleine, at the time the most coveted position in Paris, the post was offered to Saint-Saëns. Here he remained till 1877, after which time he never held any official positions, but devoted his entire time to composition and extended concert-tours, appearing as pianist, organist, and conductor of his own works. He visited the United States for the first time in the fall of 1906. On his second visit, in 1915, he came as the representative of the French Government at the Panama Exposition, when he conducted, at San Francisco, a new work, *Hail, California*, written especially for the occasion. In 1916 he made his first tour of South America. During the war he was indefatigable in giving concerts for the benefit of the various war-funds. In fact, despite his age, he continued his activities as pianist, organist, conductor, and composer to the very day of his sudden death. During his life innumerable honors and decorations were showered upon him. As early as 1868 he was made Chevalier of the Legion of Honor, in 1884 Officer, in 1900 Grand-officer, and in 1913 he received the highest honor, the Grand-Croix. In 1881 he was elected member of the Academy. In 1907 he witnessed the unveiling of his own statue in the opera house at Dieppe. At the beginning of his career his great fame as executant rather retarded than helped appreciation of his compositions, especially as he favored the instrumental forms, for which the French at that time had little understanding. Thus it was that he won his first emphatic success as a composer in Germany. But later his countrymen made amends for their earlier indifference by proclaiming him one of their classic masters, even though he was still living. Saint-Saëns' productivity was unusual, his output comprising 168 opus-numbers, the vast majority being works of large dimensions. Of his 13 operas only one, *Samson et Delila* (Weimar, 1877), has become universally known, though *Henry VIII* (Paris, 1883) has always maintained itself in France. His best known, and also finest, works are the four symphonic poems, *Le Rouet d'Omphale*, *Phaëton*, *La Jeunesse d'Hercule*, and *Danse Macabre*. Besides he wrote 3 oratorios (*Noël*, *Le Déluge*, *La Terre Promise*), 3 symphonies, 5 piano-concertos, 3 violin-concertos, 2 cello-concertos, 2 suites, and several overtures for orchestra; a mass, a requiem, cantatas, and psalms for soli, chorus and orchestra; a vast amount of chamber-music; incidental music to 10 plays. All these works testify to the universality of Saint-Saëns' genius and to his marvelous powers of assimilation, which enabled him to reproduce consciously the styles of almost every period from

the 16th century on, excepting modernism, which to him was an abomination. This universality, unfortunately, militated against the development of a decidedly individual style of his own. His numerous books exhibit a finished literary style, keen analytical power and an almost encyclopædic knowledge of the whole field of musical history.

ST. THOMAS. See **SAO THOMÉ AND PRINCE**.

ST. VINCENT. One of the Windward Islands in the West Indies; a colony of Great Britain. Area, about 160 square miles; population in 1911, 41,877; estimated in 1920, 53,210. Capital, Kingstown, with a population of 4300. One-half of the Grenadines are included under its administration, the other half being under that of Grenada. The products include: Arrowroot, rum, sugar, cocoa, spices, and one of the best varieties of sea island cotton in the world. The land has been in the hands of a few proprietors, but latterly the government has disposed of many small holdings in its plan to establish a considerable peasant proprietorship. Administrator and Colonial Secretary at the beginning of 1921, R. Popham Lob.

SAKHALIN. An island off the east coast of Siberia, separated from Japan by the narrow strait of Soya. The part south of the 50th parallel of north latitude belongs to Japan and is called Karafuto; and the part north of that line belongs to Russia and constitutes the province of Sakhalin. Japanese Sakhalin has an area of about 13,148 square miles; with a population in 1920 of 105,765. See **KARAFUTO**. The area of the Russian province is 14,668 square miles; with a population estimated, Jan. 1, 1915, at 34,000.

The strategic importance of the island caused it to figure largely in the discussion of Far Eastern questions, and its future was a matter of great concern to the Far Eastern Republic of Siberia. In 1921 the Japanese were still holding the town of Nikolaievsk in the Russian or northern half of the island. They had seized the place during the war when they undertook to protect the Czecho-Slovak forces in the course of their retreat and the Japanese subjects who were at that time in Siberia. They placed a garrison of about one thousand troops in the town ostensibly for the protection of several hundred Japanese civilians there. At the beginning of 1920 occurred the so-called massacre of Nikolaievsk for which the Japanese and Russian governments each blamed the other. The subject came up again at the time of the Disarmament Conference.

SALOME. See **MUSIC, Opera**.

SALTUS, EDGAR. American author, died, August 1. For many years he was placed among the leading realistic writers of the United States. He was born in New York City, June 8, 1858; educated at St. Paul's School, Concord, N. H., at the Sorbonne, Paris; and at German universities, and graduated at the Columbia Law School in 1880. Among the best known of his early novels were: *Mr. Inoué's Misadventure*; *The Pace that Kills* (1888); and other volumes of fiction dealing with contemporary manners, especially fashionable life. His first published writings were of a biographical and philosophical character and included a volume on *Balsac* (1884); *The Philosophy of Disenchantment* (1885); and *The Anatomy of Negation* (1886). The long list of his novels

includes the following in addition to those mentioned: *The Truth About Tristram Varick* (1888); *Eden* (1888); *A Transaction in Hearts* (1889); *Mary Magdalen* (1892); *Imperial Purple* (1893); *When Dreams Come True* (1895); *Purple and Fine Women* (1903); *The Poms of Satan* (1904); *The Perfume of Eros* (1905); *Historia Amoris* (1906); *The Lords of the Ghostland* (1907); *Daughters of the Rich* (1909); *The Monster* (1913); *Oscar Wilde—An Idler's Impression* (1917); *The Paliser Case* (1919).

SALVADOR. A central American republic on the Pacific coast, to the east of Guatemala. Capital, San Salvador.

AREA AND POPULATION. The estimates of area vary from 8170 to 13,183 square miles; the population was estimated, Jan. 1, 1920, at 1,336,442, of whom about two-thirds were mestizos and about one-sixth Indians. The population of the largest cities has been estimated as follows: San Salvador, 80,100; Santa Ana, 59,817; San Miguel, 30,406; San Vicente, 26,881; Nueva San Salvador, 23,291. The capital was badly damaged by the earthquake and volcanic eruption of June, 1917, and, while its effects were still being repaired, it was visited by another earthquake, April 28, 1919. The movement of population in 1919 was as follows: Births, 50,597; deaths, 31,703; marriages, 3596. Education is free and compulsory. In 1919 the primary schools numbered 971 with 1613 teachers and 51,305 pupils enrolled. The high schools numbered 27, including 2 normal and 3 technical schools; and there was a National University, with faculties of medicine, law, engineering, pharmacy, and dentistry.

PRODUCTION AND COMMERCE. The main occupation is agriculture, and the principal crop is coffee, which is grown on the plateaus and mountain slopes. In 1919 the acreage under coffee was 174,000, with 100,000,000 trees. Other productions are: Cacao, rubber, tobacco, sugar, cheese, and live stock. The forests contain valuable dye woods and hard woods, including: Cedar, mahogany, and walnut. Balsam trees abound and mangrove grows in the swampy places and along the river banks (see preceding **YEAR BOOK**). The mineral resources include: Gold, silver, mercury, and iron. According to a British authority the imports in 1919 were £1,876,025; and the exports, £2,115,521. By far the largest share of the foreign trade is that of the United States, and Great Britain and France come next. In 1919 the chief imports were: Hardware, cottons, drugs, flour, and chemical products; and the chief exports: Coffee, sugar, and indigo. The exports also include: Balsam, silver, hemp, hides, rubber, and henequen. Over half of the coffee exported went to the United States, and 29 per cent, to France.

FINANCE. The budget estimates for 1920-21, according to a British authority were: Revenue, £2,945,234; expenditures, £3,245,516; and the total outstanding debt, Dec. 31, 1920, was £3,655,290. The budget law for the fiscal year from July 1, 1921, to June 30, 1922, estimated the revenues at 13,714,670 colones as follows: Customs duties, imports, 6,158,600 colones, exports, 1,373,800 colones; internal revenue, liquors, 2,930,000 colones, sealed paper and stamps, 582,000 colones; direct taxes, 850,000 colones; sundry revenues, 781,000 colones; services, 943,000

colonies; national property, 96,270 colonos. The expenditures were reckoned at 13,737,209.63 colonos, as follows: National Assembly, 69,905 colonos; Presidency of the Republic, 102,904 colonos; Government Department, 3,690,228.54 colonos; Promotion Department, 1,293,190 colonos; Department of Agriculture, 46,420 colonos; Department of Foreign Relations, 364,264.34 colonos; Department of Justice, 956,772 colonos; Public Instruction, 1,226,963.76 colonos; Treasury, 912,563.60 colonos; Public Credit, 1,000,000 colonos; Public Charity, 664,852 colonos; War and Navy, 3,209,137.39 colonos; General Ministry, 200,000 colonos.

COMMUNICATIONS. In 1919 the vessels entered numbered 329 with a tonnage of 412,172. Railways open for traffic in 1918 had a length of 213 miles, all narrow gauge.

GOVERNMENT. Executive power is vested in the president who acts through a ministry of four members for the following departments: Foreign relations, justice, and instruction; interior, government and agriculture; finance, charities, and public credit; war and marine. Legislative power is vested in a congress of forty-two deputies, elected for one year by universal suffrage. Salvador took part in the formation of the Central American Federation, and became one of its constituent states. (See CENTRAL AMERICAN FEDERATION.) President in 1921, Jorge Melendez.

SALVATION ARMY. This organization was founded by the late Gen. William Booth in 1865 and was first known as The Christian Mission. Its present name was adopted in 1878 and is derived from the fact that its purpose is the "salvation of mankind from all forms of moral, spiritual, and temporal distress." Its government is "military in form and its tactics militant and aggressive." It was incorporated in the State of New York in 1899. It is a religious body and while its primary aims are evangelistic, it conducts extensive social relief. The Army continued in 1921 to perform certain welfare work for the American forces in Germany on a smaller scale. During 1920 the country was divided into three territories, the Eastern Territory with Headquarters in New York City, Central Territory with Headquarters in Chicago, and Western Territory with Headquarters in San Francisco. It was reported that this change had had a very marked effect and that the year of 1921 was the best of its history in the United States in every respect. The enrolled Salvationists in 1920 were 28,586 and in 1921, 35,969, an increase of 7383. Extensive Child Welfare Work is conducted in many institutions throughout the United States. Of these may be mentioned the Lytton Springs Orphanage and Industrial Farm in California. Statistics for the year ending Sept. 30, 1921, gave in the United States the following: 1117 corps and outposts; 3728 officers and cadets; 219,442 indoor meetings with an attendance of 9,020,964; 176,495 outdoor meetings with an attendance of 25,736,792; 80,566 converts; 6525 Life Saving Guard Meetings with an attendance of 101,836; 110,301 Junior Meetings with an attendance of 3,595,231; 12,563 local officers and bandmen. Hotels maintained by the Army comprised 58 for men, 2 for women and 5 young women's boarding homes, with a total accommodation for the year of 6031, 1,553,575 beds and 437,473 meals supplied. Industrial homes numbered 88, where accommo-

tions were provided for 2103; 6807 men were admitted during the year, 1,714,505 meals supplied and 529,437 beds. There were 6 children's homes, with accommodations for 670; 206,600 beds were supplied and 634,123 meals served. There were 19 posts and nurseries and 29 rescue homes and maternity hospitals; there were accommodations for 1708 at the latter; meals supplied totaled 1,460,841 and beds supplied, 491,784. The Army carried on valuable work among the prisons throughout the country in 1921 and undertook to locate missing friends. The international activities of the Army for the year ending December, 1921, are summed up as follows:

Countries and colonies.....	73
Languages in which salvation is preached.....	46
Corps and outposts.....	12,211
Social institutions and agencies.....	1,286
Day schools.....	752
Naval and military homes and hotels.....	35
Officers and cadets—	
Field work.....	15,579
Social work.....	3,897
	19,276
Persons without rank wholly employed.....	5,941
Local officers (senior and young people's).....	74,469
Bandmen (senior).....	26,017
Bandmen (young people's).....	7,419
Songsters.....	30,943
Corps cadets.....	18,846
Number of periodicals published.....	83
Total copies per issue.....	1,461,880

Territorial headquarters of the Army are at 120-130 W. 14th Street, New York City.

SALZBURG. Before the collapse of the Austro-Hungarian empire a crownland of Austria; lying to the east and north of Tirol; and bordered on the north by Germany. Area, 2759 square miles; population (1920), 214,200. In 1913 the population was estimated at 221,304. According to the census of 1910 the Austrian subjects numbered 208,562, nearly all German, and the Catholics formed 98.7 per cent of the total population. Capital, Salsburg, with a population in 1920 of 36,450. It is the seat of a university maintained by the state.

SAMAROV, OLGA. See Music, Artists, Instrumentalists.

SAMOA. A group of islands in the Pacific near latitude 14° south, about 130 miles north of Tonga. They consist of nine islands, aside from islets and rocks, of which the islands east of 171° east longitude have belonged to the United States since Feb. 13, 1900; and the islands to the west of that line, to Germany until after the outbreak of the war in 1914 when they passed under the administration of New Zealand. The area of this latter group is variously estimated at from 990 to 1300 square miles, with a civil population, according to the census of 1917, of 41,128, of whom the whites numbered 1668 (British, 660; Germans, 530; Americans, 236). The main islands are: Upolu, with an area variously given at between 500 and 600 square miles; and Savaii, with an area of about 660 square miles. The chief products are: Copra, cocoa, rubber, sugar, cardamoms. Imports for 1919, £291,368; exports, £532,500. Revenue for the year ending March 31, 1920, £95,022; expenditure, £96,314. The New Zealand mandate dates from Dec. 17, 1920. Under this mandate laws were made for the territory by the governor-general of New Zealand in council, and measures were taken for the establishment of a

legislative council. The civil administration began, May 1, 1920. The name of German Samoa was changed to the Territory of Western Samoa.

The area of the American group is also variously estimated at from 77 to 102 square miles, with a population according to the census of 1920 of 8056. The chief island, Tutuila with an area variously placed at from 55 to 77 square miles, is well wooded and mountainous; and had a population in 1920 of 6185. The schools numbered 69 with 2060 pupils. Four missions are engaged there, namely, the Roman Catholic (French), —Mormon, and the Wesleyan missions, and the London Missionary Society. The chief products are: Copra, and a variety of fruits, including, oranges, grape fruit, citron, and limes. Pago-Pago on the southern coast of the Island of Tutuila is one of the best and safest harbors in the South Seas and an important naval base. It is the only good harbor in the Samoan Islands. The administration is under the naval commandant and governor who is stationed at Pago-Pago, and who has the power of appointment and of framing laws. Commandant and governor in 1921

SAMOS. One of the Anatolian islands, formerly tributary to Turkey, but occupied by Greece during the late war, and administered by a Greek prefect. Area, about 181 square miles; population, estimated in 1913 at 68,949. Capital, Vathy, with a population of about 8000.

SAMPSON, ARCHIBALD, J. Lawyer and diplomat, died at Phoenix, Ariz., December 24. He was formerly minister to Ecuador. He was born near Cadiz, Ohio, June 21, 1839; and served in the Union army during the Civil War. He was admitted to the bar in 1865, and practiced in Missouri and Colorado and after 1893 at Phoenix, Ariz. He was attorney-general of Colorado, 1876-79; and minister to Ecuador, 1897-1907.

SAN ANTONIO FLOOD. See FLOODS AND FLOOD PROTECTION.

SAND AND GRAVEL. The total quantity of sand and gravel produced in 1920 was nearly 78,000,000 tons, or about 7,000,000 tons more than in 1919. The total value increased from about \$46,000,000 to more than \$62,000,000. The production of building sand increased nearly 4,000,000 tons, and the average price per ton the country over rose from 56 to 66 cents. The output of molding sand increased more than 1,000,000 tons and the value more than \$3,000,000. Glass sand, which is rather high priced, rose from an average of \$1.97 a ton in 1919 to \$2.20. The following table includes preliminary estimates for 1920:

SAND AND GRAVEL PRODUCED IN THE UNITED STATES, 1918-20		
Year	Quantity (short tons)	Value
1918.....	61,824,426	\$37,927,079
1919.....	70,576,407	45,951,556
1920.....	77,887,000	62,694,000

SANDERS, HENRY MARTIN. See NECROLOGY.

SANDHURST, WILLIAM MANSFIELD, Viscount OF. British Lord Chamberlain after 1912, died in London, November 2. He was born in 1855, educated at Rugby, entered the Coldstream Guards in 1873 and became Under-Secretary for War in 1886. From 1895 until 1899 he was Governor of Bombay. In 1906 he was a member

of a committee sent to South Africa to report on the subject of representative government.

SANDOR, MATHIAS. Painter, died in 1921. He was born in Hungary, July 10, 1857; but came to the United States and studied at the Art Students' League, New York City, 1885-86. He afterwards studied in Paris. He devoted himself especially to portrait, miniature, and landscape painting; and exhibited at all important exhibitions.

SAN FRANCISCO, CALIF. See MUNICIPAL GOVERNMENT.

SAN FRANCISCO SYMPHONY ORCHESTRA. See MUSIC, *Novelties*.

SANGER, WILLIAM CARY. See NECROLOGY.

SANGERFEST. See MUSIC, *Festivals*.

SANITATION. See GARBAGE AND REFUSE DISPOSAL, SEWERAGE AND SEWAGE TREATMENT, WATER-WORKS AND WATER PURIFICATION.

SANSKRIT LANGUAGE. See PHILOLOGY, MODERN.

SANTO DOMINGO. See DOMINICAN REPUBLIC.

SAO THOMÉ AND PRINCEPE. Two islands belonging to Portugal off the coast of French Equatorial Africa in the Gulf of Guinea. Area, 363 square miles; population in 1914, 58,907, of whom 53,969 were in São Thomé, and of whom 1570 were whites. The soil is volcanic and the surface hilly but the land is fertile. Chief products include: Cacao, coffee, rubber, and cinchona. Imports in 1919, 6,575,206 escudos; exports, 18,759,705 escudos.

SARAWAK. A British protectorate, comprising the northwestern part of the Island of Borneo, with a coast line of 400 miles. Area, about 42,000 square miles; population, estimated at about 600,000, comprising, Malays, Dyaks, Kayans, and other Polynesian tribes, along with Chinese and other settlers. Capital, Kuching, with a population of about 25,000. Exports include: Sago, flour, pepper, rubber, gold, gutta jelutong, and liquid fuel. The trade is chiefly with Singapore. There is a rich supply of coal, and considerable resources also of gold, silver, diamonds, quicksilver, and antimony. Revenue in 1919 was £295,311; and expenditure, £200,883. The government of Sarawak was bestowed by the Sultan of Brunei in 1842 upon the late Sir James Brooke, by whom an agreement was made in 1888 with Great Britain, constituting a protectorate. On the death of Rajah Brooke, he was succeeded by his son, Charles Vyner Brooke, May 17, 1917. Imperial interests are represented by a British agent who is also agent for British North Borneo and high commissioner for Brunei. The agent at the beginning of 1921 was Sir L. N. Guillemard, who was also governor of the Strait Settlements.

SASKATCHEWAN. One of the Prairie Provinces of Canada, lying east of Alberta and west of Manitoba, and extending from Montana and North Dakota to the Northwest Territories. Capital, Regina. Area, 243,382 square miles, exclusive of water; population (1921), 761,390. Population of Regina (1921), 34,432; Moosejaw (1921), 19,184; Saskatoon (1921), 25,743. Lieutenant-Governor in 1921, H. W. Newlands; Prime Minister, W. M. Martin (re-elected, June 9). See CANADA.

SASSULITCH (ZASULICH), VERA. Russian nihilist, died, July 19. She was born in 1851;

and on suspicion of complicity in a revolutionary plot was arrested in 1869, and for several years was sent from place to place in Russia under police surveillance. She was released in 1876, but on Feb. 5, 1878, angered by General Trepoff's order requiring the flogging of a student, she entered the general's office and shot him, but not fatally. At her trial she gave as a reason for her act the necessity of calling the government's attention to the outrage. The jury unanimously acquitted her, and the government was moved by public sentiment to remove Trepoff from office, though it promoted him at the same time to the post of general of cavalry. The supreme court canceled the acquittal on the ground of informality, but in 1880 Sassulitch escaped from the country and for some time lived in Switzerland. In 1905 after the Czar had issued his amnesty, she returned to Russia. She wrote on diverse social, political, and literary subjects and her papers were collected in two volumes, published in 1906.

SAULT STE. MARIE CANALS. See CANALS.

SAUNDERS, EDWARD WATTS. Former Congressman from Virginia died at Rocky Mount, December 16. He was born in Franklin County, Va., Oct. 26, 1860. After an academic education, he studied law in the University of Virginia. He practiced law at Rocky Mount, Va., after 1882; was a member of the Virginia House of Representatives, 1887-1901, and speaker during the last three years of that period; and was judge of the circuit court from 1901-06. He was elected to the Fifty-ninth Congress for an unexpired term, and was regularly reelected, serving in Congress from 1907-21. In politics he was a Democrat.

SAVAGE, Sir GEORGE HENRY. British physician, died in July. For many years he was regarded as a leading authority in psychotherapy. He was born at Brighton, Nov. 12, 1842, and trained in medicine at Guy's Hospital where he became house surgeon. Early in his practice he applied himself to the study of mental disease. After 1872 he was attached to the Bethlehem Royal Hospital, serving as medical officer and then superintendent for seventeen years. While in this position he became one of the best known physicians in London for his skillful dealing with patients suffering from mental disease and his great ability as a teacher, drawing medical students from over seas and having large classes, including many post graduate doctors. He was president of various medical societies and in 1912 became the first president of the section of new psychiatry of the Royal Society of Medicine.

SAVANNAH, GA. See GARBAGE AND REFUSE DISPOSAL.

SAVINGS BANKS. See STATE BANKS.

SAXONY. A term applied to the three following divisions of the former German empire: (1) The kingdom (proclaimed a republic, Nov. 9, 1918) which was the third largest constituent state of the empire. Area, 5787 square miles; population, 1910, 4,806,661; December, 1919, 4,670,311. Density, 805.2 per square mile. Principal towns with their populations, December, 1919: Leipzig, 604,380; Dresden, 529,326; Chemnitz, 305,775. The movement of population in 1919 was as follows: Births, 86,422; deaths, 68,892; marriages, 59,001. Common schools at the beginning of 1920 totaled 4183, with an attendance of 857,610. Leipzig is the seat of one

of the largest universities of Germany. In industry Saxony is surpassed only by the leading industrial provinces of Prussia, the chief manufacture being textiles. The leading crops are: Wheat, barley, rye, oats, and potatoes. In 1919 the acreage under cultivation was 2,285,507; and the chief crops with their acreage and yield in metric tons were as follows: Rye, 477,718 acres and 329,270 metric tons; wheat, 149,058, and 129,075; barley, 73,018, and 44,876; oats, 367,173, and 258,816; potatoes, 230,852, and 947,091. The constitution dates from Oct. 26, 1920, and the diet was elected in the following month. It was distributed among the party groups as follows: Majority Socialists, 27; German National party, 20; German People's party, 18; Independent Socialists, 13; Democrats, 8; Communists, 6; Centre, 1. Prime Minister at the beginning of 1921, elected, Dec. 11, 1920, Johann Wilhelm Buok.

(2) The Grand Duchy of Saxony or Saxe-weimar (also proclaimed a republic in November, 1918) united with the new state of Thuringia at the end of 1919 (see THURINGIA).

(3) The province of Saxony in Prussia. Area, 9756 square miles; population, 1919, 3,129,193 (see GERMANY).

SCABIES IN CATTLE AND SHEEP. See VETERINARY MEDICINE.

SCANDINAVIAN LANGUAGES. See PHILOLOGY, MODERN.

SCANDINAVIAN LITERATURE. (Including works published Christmas, 1920, but not Christmas, 1921.)

DANISH. Drama. Otto Rung's *Florian*, which depicts an international type of swindler with a Copenhagen accent, was played with great success. The same is true of Helge Rode's national festive drama *Moderen* (The Mother), which was written for the reunion of South Jutland with Denmark.

Poetry. Danish poetry is at present at a high tide. Kai Fris-Møller's *Indskrifter* (Inscriptions) contains, among other things, translations from the French and English and also old verse forms. It shows an exceptionally keen feeling for rhythm and melody. Valdemar Rørdam's *Over det indiske Hav* (Over the Indian Ocean) gives impressions gathered from a journey to East Asia and relies for its local color partly on the use of Oriental words. Another collection of poems resulting from travels is Hans Hartwig Seedorf's *Syngende Palmer* (Singing Palms), which gives us a series of dreams and fancies. Kai Hoffmann's *Den vide Verden* (The Wide World) combines a feverish desire for activity with a feeling of optimism and resignation.

Fiction. Paul Levin's *Sønner* (The Son) has a tragic tone with an element of the comic. Its effect is due to suggestiveness and vividness rather than to any definite pictures. Henry Söberg's *Den gale Præst* (The Crazy Minister) is evidently based on memories from the author's childhood. It depicts the conflict between pietism and a kind of practical Christianity which seeks its happiness in self-sacrifice. The chief character, a minister, is at the same time sublime and human. Karl Larsen's *Foraar* (Spring) contains pictures from the eighties evidently taken from the author's own youth. The book has an historical value as an interpretation of that period.

History, Literature, etc. An account of the death

of the author, J. P. Jacobsen's *Manes* (Shades) treating of the popular worship among the French was published in incomplete form. *Dansk Musik-historie indtil ca. 1700* (History of Danish Music until about 1700) is a work by Angul Hammerich, the only man who has investigated the earlier history of Danish music. Georg Brandes's latest biography *Michelangelo Buonaroti* shows a good understanding of Michelangelo as a man. The author has known how to bring his extensive knowledge in other fields to bear on his subject.

NORWEGIAN. *Drama and Theatre.* Ingolf Schanche's presentation of Hamlet in the National Theatre was perhaps the best interpretation of Shakespeare ever given in Norway. The English reader will be particularly interested in learning that Ibsen's earlier plays are now available in English translations.

Fiction. Peter Egge's *Inde i fjordene* (Among the Fjords) is a peasant story, as is also Olav Duun's *Storbryllopet* (The Big Wedding). The latter, written in Landsmaal, shows an exceptionally intimate knowledge of peasant life. In *Matilde* Oskar Braaten gives us a deep insight into the life and manner of thought of his characters. Knut Hamsun, who received the Nobel prize for the *Growth of the Soil* wrote *Konens ved vandposten* (The Women at the Well), which however lacks the idealistic tendency of the former work and is in general a disappointment. Katharina Gjesdahl's *Anne Garbens præst* (Anne Garbens Minister) shows a good understanding of ministers as men. In *Kristin Lavransdatter* Sigrid Undset goes back from the present time, which she usually treats, to the fourteenth century. In a large human way she gives us the picture of a girl who goes through all kinds of vicissitudes. Nils Collett Vogt's *Mennesker* (Human Beings) is a collection of short stories written somewhat in the vein of the nineties.

History Literature, etc. Halvdan Koht's *Den amerikanske nasjonen* (The American Nation) is a good source book and fills the need of a work treating of the genesis of the United States. Fredrik Paaasche's *Kong Sverre* (King Sverre) shows independent research. Paaasche differs from other historians in his picture of Sverre, particularly in portraying the latter as knightly and high minded. Gunnar Heiberg's *Norsk teater* (The Norwegian Theatre) shows a good practical acquaintance with the play house, as might be expected from a playwright.

SWEDISH. *Poetry.* The amount of poetry during the year was small. We may mention Ernst Högman's *En liv* (A Life), a collection of poems of good lyrical quality. The best of them is *Stockholmsidyll* (A Stockholm Idyl) which tells a story of love and sacrifice in a simple but impressive way.

Fiction. One of the main traits pervading contemporary Swedish fiction is a serious search after moral, religious, and philosophic truth. Sigfrid Siwertz's *Selambs* (The Selambs) is a family chronicle executed along larger lines than most Swedish novels. It shows how the selfishness of a guardian reacts in a disastrous way on the orphans with whose education he is charged. In Lydia Wahlström's *Sin förs dotter* (Her Father's Daughter) the heroine is hardly drawn with enough clearness. Her father is really the main character of the story and is very well

drawn, though in the case of the other male characters the author shows herself unsympathetic toward the masculine sex. Sven Lidman's *Såsom genom eld* (As through Fire) is a picture of simple religious devotion on the one hand and the cold self-satisfied religion of a formalistic state church on the other. Pär Lagerkvist's *Det eviga leendet* (The Eternal Smile) pictures life after death, but makes no attempt at explaining the meaning of existence. It leaves an impression of vagueness and indefiniteness. When reading Marika Stjernstedt's *Världen och stjärnorna* (The World and the Stars) we are reminded somewhat of Fredrika Bremer. The moral of the book seems to be that the unthinking optimism and longing for a peaceful existence should give way to an intelligent resignation. Henning Berger's *Hjärtat på väggen* (The Heart on the Wall) is a book with impressionistic tendencies. It is full of symbolism and its philosophy of life seems to be that through longing we attain to faith. In *Legend* Martin Koch tells the story of a man who after a life of crime in which he even kills his own son without knowing him, learns that love reaches its real greatness only when purified through sacrifice. The Finnish poet Jacob Tegenren wrote *Rasmus Teel*, a collection of short stories from Österbotten, and Jarl Hemmer, also a Finlander, wrote *Omni Kokko*, which depicts the late civil war in Finland. Among books translated into English may be mentioned Geijerstam's *Book about Little Brother*.

Science, Literature, etc. Sven Lönborg's *Dike och Eros* (Dike and Eros) presents a living picture of the men and powers of the Athens of antiquity. Another work dealing with classical times is Ivar Heikel's *Fron antikens värld* (From the World of Antiquity) which among other things contains the fragments of the Gospel and Revelation of Peter with a scholarly investigation and criticism of these. Among the books treating the romantic period we may note Carl Santesson's *Atterboms ungdomsdikning* (The Early Poems of Atterbom) which goes further than previous works in determining Atterbom's position in Swedish literature, and Fredrik Vetterlund's *Romantik* (Romanticism), which throws new light on many of the problems connected with the Romantic period.

SCHAEFER, WILLIAM CHRIST. Professor of theology, died, April 16. He was born in Berks County, Pa., April 28, 1851; graduated at Franklin and Marshall College, Pa., in 1871; and studied at the Theological Seminary of the Reformed Church at Lancaster, Pa. He was ordained to the ministry of the Reformed Church in 1874, and after holding pastorates at Waynesboro, Pa., and Danville, Pa., he was president of the Palatinate College, Myerstown, Pa., from 1884 to 1891. After 1904 he was professor of new testament science at the Theological Seminary of the Reformed Church. He wrote: *Outlines of the Life of Paul* (1908); *Outline Studies on the Bible, New Testament* (1912); *Catechetical Manual* (1913); *The Supreme Revelation* (1914); *The Greater Task* (1919).

SCHELLING, ERNEST. See **MUSIC, Artists, Instrumentalists.**

SCHERL, AUGUST. See **NECROLOGY.**

SCHINDEL, S(AMUEL) JOHN BAYARD. Army officer, died, March 11. He was born at Cam-

den, N. J., June 3, 1871; graduated at the United States Military Academy in 1893; and was promoted through the successive grades to the rank of colonel in 1917, and brigadier-general, August 8, 1918. He was in the Santiago campaign in Cuba in 1898 and took part in the battle of San Juan and in the siege of Santiago. He was also in the Philippines from 1899 to 1902. During the late war he was assigned to Camp Meade, Md., in 1918 and to Fort Leavenworth, Kansas, in 1919.

SCHMIDT, ARTHUR P. American publisher, died at Jamaica Plains, Mass., May 5. He was born at Altona, Germany, April 1, 1846. In 1866 he came to the United States, and ten years later established in Boston the music-publishing firm bearing his name. He has the distinction of being the first publisher to issue a large orchestral score by an American composer (J. K. Paine's *Symphony in A*, 1882). He retired in 1916.

SCHMULLER, ALEXANDER. See MUSIC, Artists, Instrumentalists.

SCHNABEL, CHARLES J. See NECROLOGY.

SCHOOLS. See EDUCATION.

SCHWARZ, JOSEF. See MUSIC, Artists, Vocalists, Opera.

SCIENCE OF LANGUAGE. See PHILOLOGY, MODERN.

SCIENCES, NATIONAL ACADEMY OF. A body of distinguished American scientists whose purpose is to promote scientific research, examination, investigation and report upon any subject of science or art when called upon to do so by any department of the government; incorporated by Act of Congress, March 3, 1863. Two meetings were held in 1921; the Annual Meeting held in Washington, April 25-27 and the Autumn Meeting held in Chicago, November 14-16. At the Annual Meeting papers were read as follows: "Ultimate rational units," by Gilbert N. Lewis; "The quantum law and the Doppler effect," by William Duane; "Preliminary measurements of the effect of high pressures on the thermal conductivities of liquids," by P. W. Bridgman; "The stratification of suspended particles," by C. E. Mendenhall and Max Mason; "Transmission characteristics of the submarine cable," by J. R. Carson and J. J. Gilbert; "Radiation from transmission lines," by J. R. Carson; "Application of the principle of similitude to the hydraulic problem of the surge chamber," by W. F. Durand; "Theories of osmotic pressure," by E. H. Hall; "Metamorphism in meteorites," by G. P. Merrill; "The Island of Tagula, (New Guinea) its satellites and coral reefs," by W. M. Davis; "The shallow seas of Australasia," by W. M. Davis; "On the vibrations of gun-barrels" and "On the problem of steering an automobile around a corner" by A. G. Webster. At the autumn meeting in Chicago numerous scientific papers were read and discussed. Among these may be mentioned: "Life tables for *Drosophila*" by Raymond Pearl and Sylvia L. Parker; "The contrasted types of earth-energy and their relative values" by Thomas C. Chamberlin; "A new theory of the carbonization of coal," by S. W. Parr; "Some physiological actions of saccharin, and their bearing on the use of saccharin in foods," by A. J. Carlson; "The influence of heredity on the incidence of cancer," by Maud Slye; and "The properties of salts as related to Atomic dimensions," by G. L. Clark.

In 1921 there were 198 active members, one honorary member, and thirty-seven foreign

associates. There are fifteen trust funds, totaling \$247,410.52. The Academy publishes an Annual Report prior to its annual meeting, Biographical Memoirs and Scientific Memoirs at regular intervals, and the record of its Proceedings in twelve numbers each year. The officers for 1922 are: Charles D. Walcott, president; Albert A. Michelson, Vice-president; Charles G. Abbot, home secretary; Robert A. Millikan, foreign secretary; and Frederick L. Ransome, treasurer. The office of the home secretary is at the Smithsonian Institution, Washington, D. C.

SCOFIELD, CYRUS INGERSOLL. Clergyman, died, July 24. He was born in Lenawee County, Mich., August 19, 1843; and brought up in Tennessee where he entered the Confederate army as private in the Civil War. He fought in the army of North Virginia under General Lee and won the Confederate cross of honor. After the war he was admitted to the Kansas bar (1869), and served for a year in the Kansas house of representatives. In 1882 he was ordained to the Congregational ministry, and was pastor at Dallas, Texas, from 1882 to 1895. From 1895 to 1902 he was pastor of the Moody Church at Northfield, Mass., and again held his Dallas pastorate from 1902 to 1907. He lectured on Biblical subjects in the United States and in Europe, and wrote: *Rightly Dividing the Word of Truth* (1885); *Addresses on Prophecy* (1900); *The Doctrine of The Holy Spirit* (1906); *Lectures on Galatians* (1907). He was the editor of the *Scofield Reference Bible* (1910); and of the *Bible of 1911* (1911); and the head of the Scofield Correspondence Bible School.

SCOTLAND. See GREAT BRITAIN.

SCULLY, THOMAS J. Ex-Congressman, died at South Amboy, N. J., December 15. He was born at South Amboy, Sept. 19, 1868, educated at the public schools and at Seton Hall College, N. J., and went into the towing and transport business. He served for five terms in Congress, beginning in 1911, and was mayor of South Amboy, 1909-10. In politics he was a Democrat.

SCULPTURE. See PAINTING AND SCULPTURE.

SEALS. See ALASKA.

SEATTLE, WASH. See GARBAGE AND REFUSE DISPOSAL.

SEDGWICK, WILLIAM THOMPSON. Biologist, died, January 26. He was born at West Hartford, Conn., Dec. 29, 1855; and graduated at Sheffield Scientific School at Yale in 1877, and Johns Hopkins in 1881. After teaching physiological chemistry in the Sheffield Scientific School, he entered the faculty of Johns Hopkins in 1879 where he taught biology. In 1883 he joined the staff of the Massachusetts Institute of Technology where he continued as professor of biology and public health. He was for eight years biologist of the Massachusetts State Board of Health, down to 1896, and after 1897 he was curator of Lowell Institute, Boston. He was a member or officer of the important societies and institutions concerned with his field of work, and wrote: *Principles of Sanitary Science and Public Health* (1902), and collaborated in various other scientific works of importance.

SEISMOLOGY. See EARTHQUAKES.

SELANGOR. See FEDERATED MALAY STATES.

SENEGAL. A French colony in the government-general of French West Africa (q. v.), consisting of four municipal communes, namely, St. Louis, Dakar, Rufisque, and Goree, and of

territories under the direct administration of the government-general. Total area, 74,112 square miles; population, estimated in 1920 at 1,204,113, of whom 4113 were Europeans. Capital, St. Louis, with a population in 1917 of 23,326. Dakar, a fortified naval station, is the seat of the government-general of French West Africa, population (1918) 25,468, of whom 2791 were French. No later figures in respect to foreign trade were available than those given in the preceding YEAR BOOK. The local budget for 1920 was 13,357,085 francs. The colony is represented by one deputy in the French parliament.

SERBIA. A Balkan kingdom which in December, 1918, was proclaimed a part of the new unitary state of the Serbs, Croats, and Slovenes (see JUGO-SLAVIA); bounded by Bulgaria on the east, Albania and Montenegro on the west, and Greece on the south; and separated from Hungary by the Danube and Save rivers. Capital, Belgrade. Area, as estimated in 1920, 42,098 square miles; and population, 4,955,631. Belgrade in 1919 had a population of 120,000. The resources are chiefly agricultural, and include: Wheat, corn, barley, oats, rye, beet roots, fruit, and tobacco. After the armistice Serbia took a leading part in the organization of the new state, and the Serbian king became also the ruler of Jugo-Slavia. King Peter died in 1921 (see PETER KARAGEORGEVITCH) and was succeeded by Alexander (see JUGO-SLAVIA).

SERVIÈRES, ARMAND. French general, died at Mauves, France, in November. He was born in 1843 and took part in the Mexican expedition as a private soldier. He was promoted an officer from the ranks, and served as lieutenant of Zouaves in the Franco-German war after which he served in Africa and then for eleven years in Tongking. His later commands were that of the Algiers Division of the 3rd Army Corps at Rouen and of the 19th Army Corps in Algeria. In August, 1914, he reentered the service as adjunct to the general in command of the troops of North Africa. He was a Grand Cross of the Legion of Honor.

SEVCIK, OTAKAR. See MUSIC, Artist, Instrumentalists.

SEVENTH DAY ADVENTISTS. See ADVENTISTS.

SÉVÉRAC, DÉODAT DE. French composer, died at Ceret, Pyrénées Orientales, in March. He was born at Lauragais, July 20, 1873. In France he was well known as a composer of several operas and incidental music to a number of modern plays. His orchestral works and chamber-music also are highly esteemed.

SEWERAGE AND SEWAGE TREATMENT. Fine screening for preliminary treatment or where a moderate degree of clarification alone is sufficient, continued to receive study, with adoption by some cities. For more complete treatment, screens or else sludge-digestion tanks of the one- or two-story (Inhoff) type continued to serve for clarification, with (2) some forms of oxidizing beds for the removal of decomposable organic matter, and (3), if heavy bacterial reduction were desired, with chlorination as a finishing process. Much interest continued in the activated-sludge process as serving all three of the objects just mentioned, but except for such projects at Milwaukee and Chicago, little was done towards the installation of new activated-sludge plants (see earlier YEAR BOOKS for mention of the two large

plants of this type at Houston and a number of smaller ones elsewhere). At the close of the year, Milwaukee was about to receive bids for completing what will be by far the largest activated-sludge plant in the world. The completion of a similar project at Worcester, England, which would make that place the largest one in England treating all sewage by activation, was halted by local complications. At Manchester and Sheffield, activated-sludge studies and projects were continued, as also at Shanghai, China, where £32,000 was appropriated to continue on a yet larger scale working tests previously begun. Experimented studies of this and other processes were conducted at Milwaukee, by the Sewerage Commission; at Champaign, Ill., by the Illinois Water Survey; and at New Britain, Conn., by the State Stream Pollution Commission. For the third time in the last few years the people of Los Angeles, Calif., voted down a sewerage bond issue, the amount in 1921 being \$12,850,000 for constructing trunk sewers to convey sewage to the Pacific ocean and a sewage treatment plant there (see *Engineering News-Record* June 30, 1921, for outline of project). Subsequently these city and consulting engineers advised a smaller bond issue to carry out a part of the larger project, and to build two good-sized activated-sludge plants to serve portions of the city and to afford working-scale data for future guidance. An adverse decision was rendered by the United States Supreme Court in the long-drawn out suit brought by New York State (nominally, but practically by New York City) for an injunction against the discharge of sewage into New York Bay from the trunk sewer and sewage-treatment works being built by the Passaic Valley Sewerage District for Newark, Paterson, and other communities. The court held that New York had not proved that a nuisance would be created (see *Engineering News-Record*, May 19, 1921, for major part of the opinion).

SHALIAPIN (CHALIAPINE), FEODOR. See MUSIC, Artists, Vocalists, Opera.

SHANTUNG. One of the eighteen provinces of China proper; since the Treaty of Versailles, a subject of dispute between Japan and China. It was one of the questions pertaining to the Far East that was most actively discussed in the closing months of the year at the Disarmament Conference at Washington. See the articles, CHINA; JAPAN; and WAR OF THE NATIONS.

SHEEP. See LIVE STOCK.

SHEPPARD, EDGAR. See NECROLOGY.

SHIPBUILDING. With the world-wide depression in trade shipbuilding suffered along with other industries and along with decreased output in 1921 in practically all the maritime nations there was a general note of uncertainty which influenced the placing of new orders and further activity. This was shown both in the production and amount of tonnage launched as indicated in the accompanying tables but also in the relatively small amount of construction under way on Dec. 31, 1921. This naturally was regrettable as the shipyards of the world never had been better organized for efficient and large scale production and the two million tons of shipping launched in British yards in 1920, for example, was by no means the limit of the industry.

In 1921 this production fell off some 25 per cent. Outside of Great Britain the same general conditions applied and shipyards did not increase

their production appreciably. Taking these countries in 1921 it would appear that there was a decrease from four and a half million tons to less than three and a half millions, but this is accounted for in a decrease of nearly a million and a half tons in large measure by the decline of shipbuilding in the United States where there was a decrease of nearly a million and a half tons.

The German production in 1921 judged by figures exhibited a very large advance, not altogether accounted for by the greatly increased activity in that country but in part explained by the lack of complete returns in 1920. There was a large decrease in Japan, and decreases also in Denmark, Sweden, and Spain; but on the other hand there were increases in Holland, France, Italy, and Norway, so that Continental countries as a whole have maintained their 1920 position, while the United Kingdom, the United States and Japan experienced a serious period of reduced output.

The following tables from the Annual Report of the *Glasgow Herald* from returns secured at the end of the year shows the output of the world's shipyards, for 1921 and 1920:

	1921		1920	
	Vessels	Tons	Vessels	Tons
England.....	466	897,365	690	1,214,319
Scotland.....	313	580,216	446	778,914
Ireland.....	25	118,691	33	147,695
United Kingdom...	804	1,596,272	1,169	2,140,928
Dominions.....	181	153,490	307	287,493
Empire.....	985	1,749,762	1,476	2,428,421
Foreign.....	1,417	3,439,731	1,798	4,518,763
Total.....	2,402	5,189,493	3,274	6,947,184

The United Kingdom had an established lead among the shipbuilding nations as America had dropped definitely to second place after it phenomenal war efforts. Germany was already three years after the close of the war—and from the extraordinary activity of her shipbuilding plants in 1920 and 1921, would in all probability be back in her old position of second within a comparatively short time. The following are the countries whose output in 1921 was over 200,000 tons:

	Vessels	Tons	I. H. P.
United Kingdom.....	804	1,596,272	1,318,788
United States.....	292	1,303,735	1,510,894
Germany.....	241	622,762	369,811
Japan.....	119	424,284	659,185
Holland.....	292	292,586	177,851
France.....	119	223,974	129,135
Italy.....	62	205,594	91,730

LLOYD'S ANNUAL SUMMARY OF SHIPBUILDING. This annual report of ships launched during the year affords an authoritative basis of comparison between the different nations of the world and the industry at different epochs. Lloyd's Annual Summary does not include warships and takes into account only merchant vessels of 100 tons gross and upward that were launched, whether they were completed during the year or were still under construction at its close. Lloyd's includes sailing vessels fitted with auxiliary power with steamers or motor vessels according to the type of engine. The annual summary of the mercantile shipbuilding of the world for the calendar year 1921, indicated a total output for the year of 4,341,679 tons. These figures

represented a decrease of 1,520,000 tons as compared with 1920, but they exceeded by more than 1 million tons those for 1913, during which year the prewar world's record output was reached. In 1921 the United Kingdom's percentage of the world's output was practically the same as in the previous year, viz.—35 per cent, but was considerably less than in 1913 when this figure reached 58 per cent.

The great development in the use of the steam turbine is very evident in this summary for during the year under review there were launched 167 vessels of about 1,195,000 tons which were to be fitted with steam turbines. This tonnage represented over 30 per cent of the total world's output of steel steam tonnage, and was an average tonnage of 7155 tons per vessel.

The tonnage of new vessels which were being fitted with internal combustion engines also was steadily increasing. During 1919 such tonnage amounted to about 156,000 tons, and for 1921 about 306,000 tons were launched; this total, however, only equaled about 7¼ per cent of the world's output of steam tonnage for 1921.

On the basis of size or type it was stated that of the 1377 vessels launched in the world during the year, 278 were of between 4000 and 7000 tons, 141 between 7000 and 10,000 tons, and 47 over 10,000 tons each.

During 1921, excluding vessels of less than 1000 tons, 151 vessels of about 1,050,000 tons were launched which were built for the carriage of oil in bulk. Most of these vessels were built on the Isherwood system of longitudinal framing, the total number and tonnage of vessels built on this system during 1921 being 139 of about 1,020,000 tons.

The countries where the largest amounts as tonnage launched recorded during 1921 were of follows:—

	Tons
United Kingdom.....	1,538,052
United States.....	1,006,413
Germany.....	509,064
Holland.....	232,402
Japan.....	227,425
France.....	210,663
Italy.....	164,748

During the four years, 1918–21, the total addition to the world's merchant navies by new construction amounted to nearly 23 million tons, a total considerably higher than the combined output for the nine years 1905–13.

UNITED KINGDOM. The tonnage launched in the United Kingdom during 1921 was 1,538,052 tons, which figures were 517,572 tons lower than the record figures for 1920. The total equals over 35 per cent of the world's output for the year under review.

Of the tonnage launched during the year, 591,870 tons were intended for owners outside the United Kingdom—equal to 38.5 per cent of the total tonnage launched. The tonnage intended for Norwegian owners amounted to 134,555 tons, that for French owners 127,854 tons, and 123,811 tons were for Dutch owners.

SIZE AND TYPE OF BRITISH VESSELS LAUNCHED. The returns show that 103 vessels of between 5000 and 10,000 tons each, and 24 vessels of 10,000 tons and upwards were launched. The following are the six largest:—

Names	Builders	Tons	I. H. P.
Laconia.....	Swan, Hunter, etc.,	19,780	13,500
Windsor Castle	John Brown & Co.	19,000	14,500
Conte Rosso....	Wm. Beardmore & Co.	18,500	21,000
Tuscania.....	Fairfield Shipbuilding Co.	17,250	14,000
Moldavia.....	John Brown & Co.	16,510	13,250
Montelara.....		16,400	13,500

During 1921 70 vessels with a total tonnage of 624,487 tons were launched which were to be fitted with steam turbines, and practically all of them with geared turbines. During the year 28 motor vessels of 102,356 tons were launched, and 11 of them were of 5000 tons and upwards, the largest being of about 9500 tons.

The tonnage launched in England and Wales amounted to 867,600 tons, in Scotland 551,856 tons, and in Ireland 118,596 tons. The leading shipbuilding centres were Glasgow with 358,347 tons, and Newcastle with 354,813 tons.

UNITED STATES. Lloyd's Summary indicates for the United States that the output for the year 1921, viz.—1,006,413 tons, was 1,469,840 tons lower than during 1920, and over 3 million tons less as compared with the record year of 1919.

This decrease was general all over the country. The tonnage launched on the Pacific Coast repre-

sented 55.7 per cent of the output for 1920; at Atlantic and Gulf Ports about 38 per cent and on the Great Lakes less than 9 per cent.

Notwithstanding this great reduction the figures for 1921 still represented nearly 36 per cent of the world's output outside of the United Kingdom.

The total figures for the United States, excluding vessels of less than 1000 tons, comprised 33 vessels of about 228,000 tons to be fitted with steam turbines, and 11 vessels of about 35,000 tons to be fitted with internal combustion engines. Ninety-two steamers for the carriage of oil in bulk were launched with a tonnage of about 690,000 tons; 86 of these vessels, of about 670,000 tons, were built on the Isherwood system of longitudinal framing, and in addition 9 other vessels of about 76,000 tons were also built on this system. The totals comprised 53 steamers, each of between 4000 and 7000 tons; 50 of between 7000 and 10,000 tons, and 18 vessels of 10,000 tons and upwards, including the *S. S. Bethore*, of 15,300 tons, launched by the Bethlehem S. B. Corp., at Sparrow's Point, Md., the largest vessel launched during 1921 outside of Great Britain.

THE WORLD'S SHIPBUILDING

(From Lloyd's Register)

TABLE SHOWING THE NUMBER AND TONNAGE OF MERCHANT VESSELS OF 100 TONS GROSS AND UPWARDS LAUNCHED IN THE VARIOUS COUNTRIES OF THE WORLD DURING THE YEARS 1910-1921

British Dominions												
Year	Austria-Hungary		Belgium		Coasts		Canadian lake ports		Denmark		France	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
1910	8	14,304	7	6,226	53	14,601	7	11,742	18	12,154	55	80,751
1911	16	37,836	6	7,563	59	16,006	3	3,656	18	18,689	79	125,472
1912	12	38,821	10	18,542	78	25,090	8	9,700	22	26,103	80	110,734
1913	17	61,757	54	30,181	77	26,744	14	21,595	31	40,932	89	176,095
1914	11	34,335	8	17,145	58	22,288	22	25,246	25	32,815	83	114,052
1915			No returns		27	13,289	4	8,725	23	45,198	6	25,402
1916			No returns		36	22,577	4	8,994	28	35,277	9	42,752
1917			No returns		80	66,475	25	27,996	23	20,445	6	18,828
1918			No returns		184	230,514	22	49,390	13	26,150	3	13,715
1919			2	2,433	235	298,495	28	60,233	46	37,786	34	32,633
1920			5	8,371	90	174,557	13	29,087	30	60,669	50	93,449
1921			3	17,909	49	118,303	5	11,372	37	77,238	65	210,663

Year	Japan		Norway		Spain		Sweden		United Kingdom		United States Coast		Great Lakes		Other countries		Total
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	
1910	70	30,215	64	36,931	1	3,234	17	8,904	500	1,143,169	156	177,601	39	153,717	39	11,037	1,277 1,957,853
1911	109	44,359	71	35,435	1	3,838	11	9,427	772	1,803,844	112	95,693	30	75,876	31	6,463	1,599 2,650,140
1912	168	57,755	89	50,255	12	4,260	22	13,968	712	1,738,514	144	194,273	30	89,950	30	23,852	1,719 2,901,769
1913	152	64,664	74	50,637	12	8,488	25	18,524	688	1,932,153	182	228,232	23	48,216	17	4,786	1,750 3,332,882
1914	32	85,861	61	54,304	5	5,163	26	15,163	656	1,683,553	84	162,937	10	37,825	22	13,840	1,319 2,852,753
1915	26	49,408	69	62,070	5	12,765	27	20,319	327	650,919	76	157,167	8	20,293	5	876	743 1,201,638
1916	55	145,624	52	42,458	6	10,847	34	26,769	306	608,235	167	394,899	44	119,348	12	3,449	964 1,688,080
1917	104	135,141	44	46,103	10	22,777	34	26,760	286	1,162,896	286	821,115	60	176,804	17	9,761	1,112 2,937,786
1918	198	489,924	61	47,723	18	17,389	36	39,583	301	1,348,120	741	2,602,153	188	430,877	22	17,089	1,866 5,447,448
1919	133	611,883	82	57,578	41	52,609	53	50,971	612	1,620,442	852	3,579,826	199	495,559	34	24,322	2,483 7,144,549
1920	140	456,642	30	38,855	13	45,950	46	63,823	618	2,055,624	467	2,348,725	42	127,528	34	42,047	1,759 5,861,066
1921	43	127,425	35	51,458	11	47,256	27	65,911	426	1,538,052	166	995,129	7	11,284	78	63,465	1,377 4,341,679

¹ Returns are not available as regards Germany and Austria for the war period (1914-18) nor as regards Germany for 1919 and 1920.

SUMMARY OF THE TOTAL OUTPUT OF MERCHANT VESSELS IN THE WORLD DURING 1921

Where built	Steamers		Motor vessels		Sailing vessels & barges		Total
	No.	Tons (gross)	No.	Tons (gross)	No.	Tons (gross)	
United Kingdom.....	371	1,429,757	28	102,356	27	5,939	426 1,538,052
Other countries.....	698	2,537,976	108	204,286	145	61,365	951 2,803,627
Total for the world.....	1,069	3,967,733	136	306,642	172	67,304	1,377 4,341,679

COUNTRIES FOR WHICH THE MERCHANT VESSELS LAUNCHED IN THE UNITED KINGDOM DURING 1921 WERE BUILT

Country for which intended	No.	Gross tonnage
United Kingdom.....	287	946,182
British Dominions.....	12	66,373
Argentina.....	8	15,837
Brasil.....	4	1,601
Chile.....	2	4,750
China.....	1	1,940
Denmark.....	6	21,465
France.....	28	127,854
Greece.....	3	10,644
Holland.....	19	123,811
Italy.....	3	30,164
Japan.....	2	15,200
Norway.....	39	134,551
Portugal.....	1	191
Roumania.....	1	3,550
Spain.....	6	20,562
For sale or flag not stated.....	4	13,377
Total.....	426	1,538,052

AMERICAN SHIPBUILDING IN 1921. The American Bureau of shipping, the American classification society composed of shipowners, underwriters, and persons prominently identified with maritime commerce, and those prominent in the branches of science appertaining to ship construction and operation reported that more than \$234,000,000 was expended for new vessels constructed in American shipyards during 1921, and a total tonnage of 7,352,071 gross tons turned out.

This construction was despite the slump in shipbuilding all over the world, already referred to, and involved 188 vessels of over 1000 gross tons completed during the year 1921.

Of this number 63 were for U. S. Shipping Board account, 111 for private account American ownership, 9 for British owners, three for Holland owners, 1 for Norwegian and 1 for Honduran. Of the total 1,352,071 gross tons 87,750 gross tons were for foreign ownership, the bulk of which, 58,738 gross tons, were for British interests. With one exception—a 2500-ton ship to sail under the Honduran flag as a passenger and fruit ship—all the foreign tonnage was oil tankers. Orders for these ships had been placed at a time when quick deliveries could not be obtained in foreign yards. In 1921 there were 47 ships of 10,000 gross tons and over launched as compared with 22 in the previous year.

NUMBER AND TONNAGE OF VESSELS BUILT IN THE UNITED STATES. FISCAL YEARS 1920 AND 1921

From Report of the Commissioner of Navigation

Geographical distribution	1920		1921	
	Number	Gross tons	Number	Gross tons
Atlantic and Gulf Coasts.....	993	2,139,537	819	1,533,930
Pacific Coast.....	622	1,336,335	281	613,625
Northern Lakes.....	267	394,467	130	106,731
Western Rivers.....	185	10,300	131	10,829
Total.....	2,067	3,880,639	1,361	2,265,115
Power and material				
Sail				
Wood.....	113	128,001	69	90,554
Metal.....	2	4,183	1	1,189
Total.....	115	132,184	70	91,743

Power and Material	1920		1921	
	Number	Gross tons	Number	Gross tons
Steam				
Wood.....	1224	322,917	76	29,426
Metal.....	741	3,279,852	375	2,000,994
Total.....	965	3,602,769	451	2,030,420
Gas				
Wood.....	688	48,035	491	12,810
Metal.....	25	9,219	22	27,991
Total.....	713	57,254	513	40,801
Canal: Wood.....	2	269	23	3,728
Barges				
Wood.....	233	72,378	231	69,668
Metal.....	39	15,795	73	29,205
Total.....	272	88,173	304	98,873
Total construction.....	2,067	3,880,639	1,361	2,265,115

¹ Includes 6 concrete steam vessels of 23,119 gross tons.

² Includes 6 concrete steam vessels of 37,553 gross tons.

³ Includes 1 concrete gas vessel of 1433 gross tons.

⁴ Includes 7 concrete barges of 2112 gross tons.

THE WORLD'S LEADING SHIPBUILDERS. During 1921 there were 16 shipbuilding plants whose output was in excess of 60,000 tons. The leading position as will appear from the following summary from the *Glasgow Herald's* Annual Review of Shipbuilding was taken by the Bethlehem Shipbuilding Corporation with the production of its five yards, and second place by another American establishment. Armstrong, Whitworth & Co., of Newcastle-on-Tyne, were easily highest in the United Kingdom, and it is a remarkable fact that the Tyne had produced the three highest British outputs, while the Clyde came in only once, and that at the bottom of the list:

	Vessels	Tons
Bethlehem S. B. Corp., U. S. A. (5 yards).....	52	247,092
New York Shipbuilding Co.....	11	141,531
Armstrong, Whitworth & Co.....	14	98,390
Kawasaki Dockyard Co., Japan.....	12	96,170
Newport News Shipbuilding Co., U. S. A.....	6	94,302
Palmer's Shipbuilding & Iron Co.....	12	88,570
Mitsubishi Shipbuilding Co., Japan.....	12	85,875
Swan, Hunter & Wigham Richardson (3 yards).....	14	80,401
Bremer Vulkan, Vegesack.....	10	79,850
Sun Shipbuilding Co., U. S. A.....	10	75,658
Federal Shipbuilding Co., U. S. A.....	17	74,214
Moore Shipbuilding Co., U. S. A.....	9	71,534
Merchant Shipbuilding Corp., U. S. A. (2 yards).....	11	69,775
Harland & Wolff, Belfast and Clyde (3 yards).....	8	69,753
Vickers, Ltd.....	7	64,320
Wm. Beardmore & Co.....	7	60,179

BRITISH SHIPBUILDING DISTRICTS. In 1921 within the United Kingdom first place for output among the shipbuilding areas continued to be held by the Clyde, with the North-East Coast rivers and Belfast following. The production everywhere was lower than in the previous year, but apart from the United States and Germany, the Clyde had a tonnage higher than that of any foreign country:

	Vessels	Tons	I. H. P.
The Clyde.....	249	511,185	478,760
The Tyne.....	73	356,947	283,202
The Tees.....	24	160,508	133,800
The Wear.....	30	144,868	63,083
The Lagan.....	13	93,494	70,100

SEAGOING STEEL TONNAGE ACCORDING TO YARDS

American Bureau of Shipping

STEEL TONNAGE BUILDING AND CONTRACTED FOR IN		THE UNITED STATES, DEC. 31, 1921					
Shipyard		Private account		E. F. C. account		Total	
	No.	Gross		No.	Gross	No.	Gross
Bethlehem S. B. Corp.							
Baltimore D. D. Plant...	2	11,600	..	..	..	2	11,600
Sparrows Point Plant...	3	40,500	2	21,000	..	5	61,500
Union Plant.....	3	34,000	..	..	..	3	34,000
Daniels, Oscar Co.....	1	7,800	..	..	..	1	7,800
Federal S. B. Co.....	2	12,000	..	..	..	2	12,000
Hanlon D. D. & S. B. Co.....	1	1,500	..	..	..	1	1,500
Merchant S. B. Corp.....	2	15,600	..	..	..	2	15,600
New York S. B. Corp.....	3	19,600	2	21,000	..	5	40,600
Southwestern S. B. Co.....	1	5,600	..	..	..	1	5,600
Sun S. B. Corp.....	2	18,000	..	..	..	2	18,000
Union S. B. Co.....	6	40,800	..	..	..	6	40,800
Virginia S. B. Corp.....	1	6,060	..	..	..	1	6,060
	27	213,060	4	42,000	..	31	255,060

RIVER AND HARBOR STEEL TONNAGE BUILDING AND CONTRACTED FOR IN THE UNITED STATES FOR PRIVATE OWNERS. DEC. 31, 1921.

Shipyard	No.	Gross
American Bridge Co.....	32	12,403
American Car & Fdry.....	3	1,500
Bethlehem S. B. Corp. Harlan Plant.....	1	1,462
Consolidated S. B. Corp.....	1	825
Dollut & Williams.....	2	910
¹ Dravo Contr. Co.....	16	5,175
Johnson Iron Works.....	2	700
Jones & Laughlin.....	10	5,000
Kyle and Purdy.....	3	2,920
Lawley, George A., Co.....	1	350
Marietta Mfg. Co.....	3	1,350
Merchant S. B. Corp.....	1	250
Midland Barge Co.....	2	170
Nashville Barge Co.....	1	258
Rice Brothers.....	4	1,600
Ward, Chas. Eng.....	3	1,800
Total.....	85	38,873

¹ Also building three barges for the U. S. S. B.

SHIPPING. In 1921 there came to a rather abrupt finish the period of inflation and speculation in shipping and foreign trade that arose during the world war and flourished for several years the world over. Economists and historians referred to similar conditions following every great war and so far as America was concerned the series of wars that terminated in 1815 afforded an example which in large measure was repeated. As in those days there was a vast expansion of American shipping. But in the twentieth century the part played by the United States was proportionately greater as the resources of the treasury were used for shipbuilding and shipping without stint. One has to appreciate the sudden and abnormal growth of this great industry to realize the difficulties and the serious nature of the return to normal condition and also to appreciate that such a process could not be effected in a moment but necessarily must be gradual and in-

UNITED STATES TONNAGE TABLES AS OF DEC. 31, 1921

American Bureau of Shipping

STEEL TONNAGE BUILDING AND CONTRACTED FOR IN THE UNITED STATES

Private owners		Classed		Unclassed		Total	
Type and fuel		No.	Gross	No.	Gross	No.	Gross
Cargo.....	Coal.....	1	1,500	..	..	1	1,500
	Oil.....	6	44,200	..	..	6	44,200
	Coal or Oil.....	3	18,060	..	..	3	18,060
	Total.....	10	63,760	..	..	10	63,760
Tanker.....	Oil.....	17	149,300	..	..	17	149,300
Grand Total.....		27	213,060	..	..	27	213,060
United States Shipping Board		Classed		Unclassed		Total	
Type and fuel		No.	Gross	No.	Gross	No.	Gross
Pass. & Cargo..	Oil.....	4	42,000	..	..	4	42,000
Total.....		31	255,060	..	..	31	255,060

STEEL TONNAGE BUILDING AND CONTRACTED FOR IN THE UNITED STATES, SEPARATED BY GEOGRAPHICAL LOCATION

Private owners		Atlantic		Pacific		Gulf		Total	
Type		No.	Gross	No.	Gross	No.	Gross	No.	Gross
Cargo.....		9	62,260	1	1,500	..	..	10	63,760
Tanker.....		12	101,900	4	39,600	1	7,800	17	149,300
Total.....		21	164,160	5	41,100	1	7,800	27	213,060
United States Shipping Board		Classed		Unclassed		Total			
Type		No.	Gross	No.	Gross	No.	Gross		
Pass. & Cargo.....		4	42,000	..	..	4	42,000		
Total.....		25	206,160	..	..	31	255,060		

volve many attendant circumstances. As will appear from the accompanying table the gross tonnage of American ships in the foreign trade from June 30, 1914, to June 30, 1921, increased eleven fold, and of this amount nearly 8,000,000 gross tons was owned by the United States Shipping Board, being built or acquired with the proceeds of taxation and the sale of Liberty bonds. But having this vast amount of shipping available and keeping it employed in 1921 were two different matters. Again, one has recourse to a comparison of statistics for the last year before the war dealing with the entries and clearances in foreign trade at American ports as it is only in that way can the great increase by 1921 be observed.

Gross tonnage of United States documented shipping on June 30, 1914 and 1921:

From the Report of the Commissioner of Navigation				
Domestic trade				
	Foreign trade	Great Lakes	Sea and river	Total
	Gross tons	Gross tons	Gross tons	Gross tons
June 30, 1914...	1,076,152	2,882,922	3,969,614	7,928,688
June 30, 1921...	11,081,690	2,361,166	4,839,280	18,282,136
Increase.....	10,005,538	1,521,756	869,666	10,353,448

¹ Decrease.

Entries and clearances in the foreign trade (expressed in net tons each of 100 cubic feet, available for carrying cargo or passengers), at ports of the United States during the years ended June 30, 1914 and 1921, and the changes which have occurred:

	American Net tons	Foreign Net tons	Total Net tons
Year ended June 30, 1914:			
In trade with North America.....	25,807,974	30,821,192	56,629,166
In trade overseas.....	1,662,729	48,280,091	49,942,820
Total.....	27,470,703	79,101,283	106,571,986
Year ended June 30, 1921:			
In trade with North America.....	46,070,997	25,419,370	71,490,367
In trade overseas.....	21,875,339	44,705,463	66,580,802
Total.....	67,946,336	70,124,833	138,071,169
Changes:			
In trade with North America.....	+20,263,023	-5,401,822	+14,861,201
In trade overseas.....	+20,212,610	-3,574,628	+16,637,982
Total.....	+40,475,633	-8,976,450	+31,499,183

The foreign trade of the United States naturally divides into that with foreign ports of North and Central America and the West Indies and other islands, and that with Europe, Africa, Asia, Australia, the islands of the Pacific and South America. In both of these fields the great gains were apparent not only in the total amount of trade and that done in American vessels. However, a word or two of explanation is in order. Nineteenths of the increase in the American trade with North America during the period under consideration was due to the importation of oil in tank ships from Mexico which increased from 737,000,000 gallons in 1914 to 5,606,000,000 gallons and the clearance of about 6,000,000 net tons of shipping in ballast, almost all American, from United States ports to Mexico. Considering also the overseas trade, it will appear that in the interval from 1914 to 1923 the proportion carried

by American ships increased their proportion from 3 per cent to over 30 per cent or from 1,662,729 tons to 21,875,339 tons while trade carried under foreign flags declined from 48,280,091 to 44,705,463 tons. These figures, dealing as they do with the tonnage entered and cleared rather than with the volume of trade expressed in the money value of exports and imports, subject of course to shifting standards of value, were believed to supply a better criticism of the development of American shipping under the conditions brought about by the World War.

The growth in American tonnage already referred to was one form of the answer of the United States to the destruction of shipping by German submarines, and followed the appropriation of over \$3,000,000,000 by the American Congress. In 1921 these appropriations were virtually exhausted and on June 30, 1921, there remained to be completed only 25 steamships of 214,638 tons of the Shipping Board's building programme and later in the year a number of these were finished (see SHIPBUILDING). (See table, page 656.)

If the shipping of the United States increased during the war it is only fair to consider what happened to that of other nations, and for purpose of further reference the figures of 1907 are also given. These 14 years marked the gradual disappearance of sailing craft and the increase of steel steamships especially in larger units. In 1907 the United States had less than 10 per cent of the world's steel steam tonnage, in 1914 still less than 10 per cent, while in 1921 it had 26 per cent of the world's steel tonnage and 27 per cent of the world total tonnage which is an amount adequate to handle not only 50 per cent of the American

water-borne commerce as it did in 1921 but over 75 per cent of the foreign commerce of the United States and the coasting trade. The loss of Germany's merchant marine and also that of Austria is, of course, obvious.

THE UNITED STATES SHIPPING BOARD. In connection with the expansion of its merchant marine the people of the United States had a brief but expensive experience in government ownership and operation of ocean steamships. This led to the abandonment of this policy which had a trial on a scale never before attempted or even conceived. Naturally much of this development came after the armistice as will appear from the accompanying table. On Dec. 1, 1918, the date available nearest to the armistice, the Shipping Board fleet comprised 541 ships of 2,037,584 gross tons. Of these, nearly half, 229 of 926,061 gross tons, were ships which had been ordered by

WORLD'S SHIPPING

Country	1907 Gross tons	1914 Gross tons	1919 Gross tons	1920 Gross tons	1921 Gross tons
United Kingdom.....	15,930,368	18,892,089	16,345,000	18,111,000	19,320,053
British Dominions.....	1,070,771	1,631,617	1,863,000	2,032,000	2,268,553
United States:					
Seagoing.....	1,542,177	2,026,908	9,773,000	12,406,000	13,583,340
Great Lakes.....	1,618,718	2,260,441	2,160,000	2,119,000	2,163,144
Austria-Hungary.....	677,221	1,053,246	731,000	.....	.....
Belgium.....	191,597	341,025	306,000	410,000	546,041
Brazil.....	191,088	307,607	493,000	476,000	476,436
Denmark.....	660,955	770,430	631,000	719,000	883,052
France.....	1,264,368	1,922,286	1,962,000	2,963,000	3,298,795
Germany.....	3,705,700	5,134,720	3,247,000	419,000	654,407
Greece.....	421,743	820,861	291,000	497,000	687,250
Italy.....	823,825	1,430,475	1,238,000	2,118,000	2,467,537
Japan.....	1,068,747	1,708,386	2,325,000	2,996,000	3,354,806
Netherlands.....	776,855	1,471,710	1,574,000	1,773,000	2,208,433
Norway.....	1,264,002	1,957,353	1,597,000	1,980,000	2,371,051
Spain.....	673,301	883,926	709,000	937,000	1,111,563
Sweden.....	686,517	1,015,364	917,000	996,000	1,085,984
Other countries.....	1,391,358	1,778,000	1,753,000	2,954,000	2,466,380
Total steam tonnage.....	33,968,811	45,403,877	47,897,000	53,905,000	58,846,325
Sail tonnage.....	5,469,106	3,685,675	3,022,000	3,409,000	3,128,328
Grand total.....	39,438,917	49,089,552	50,919,000	57,314,000	61,974,653

¹ Net tonnage.

shipowners before the United States entered the war and were requisitioned, and 50 of 174,114 gross tons in addition were bought from private owners; 47 of 230,778 gross tons were seized German steamers. The fleet ordered and completed by the Shipping Board to that date consisted of 125 steel ships of 461,075 gross tons and 90 wooden ships of 245,556 gross tons. Its growth to July 1, 1921, is indicated in the table.

The number and gross tonnage of U. S. shipping Board and other branches of American Shipping at the beginning of each fiscal year indicated:

The year 1921 witnessed along with an increase in tonnage due to new construction a rapid fall in ship values and a steady decline in ocean freight rates. In 1914 a new cargo steamer it was said could have been purchased for \$35 a deadweight ton; in May, 1919, \$27 a ton was paid for a new 9250 deadweight ton ship figured with exchange at \$3.75 a pound, while in 1921 a new steamer of 5000 tons was sold in July for \$24 a ton, and a larger one, five years old, was sold in September for \$11 a ton. One of the best German built ships turned over to the British government was

REPORT OF COMMISSIONER OF NAVIGATION

July 1—	Shipping Board (1,000 gross or over)		Seagoing Private owners (500 gross or over)		All other		Total	
	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons
1917.....	19	76,180	1,552	3,564,160	24,826	5,230,717	26,397	8,871,037
1918.....	235	939,058	1,649	3,813,325	24,827	5,172,135	26,711	9,924,518
1919.....	982	3,827,203	1,676	3,927,651	24,855	5,152,446	27,513	12,907,300
1920.....	1,630	6,903,128	1,774	4,375,613	24,779	5,095,283	28,183	16,324,024
1921.....	1,798	7,983,771	1,925	5,240,630	24,286	5,047,735	28,009	18,282,136

During the year 1921 a new Shipping Board was formed under the chairmanship of Albert D. Lasker and an early act of the Board was to turn over the operation of ships to the Emergency Fleet Corporation. This organization was reorganized with directors who were experienced in the shipping business and to them were paid high salaries. The corporation straightway sought to put into effect policies of efficiency and economy, and aimed to develop the larger aspect of the situation by establishing broad principles of operation and enforcing more completely the Shipping Act of 1916 and the Merchant Marine Act of 1920, parts of which had never been carried into practice. The Emergency Fleet Corporation not only was seeking a fundamental basis of operation, but it reduced to a minimum the number of companies operating from the same port and withdrew from active operation ships that were incurring large losses. In fact it was stated that at the end of the year only about 300 of the 1500 government-owned steel steamers were in active service.

bought back by the German line for which it was originally built for \$28 a gross ton.

At the end of the year the New York-London service of the U. S. Lines, the Shipping Board's transatlantic passenger fleet, was about to be augmented by the addition of three steamers. The vessels to be added were the *Peninsula State* and the *Lone Star State*, and the *Old North State*, previously operated by the line, but later returned.

All of these ships were among the most modern vessels of American construction. The *Peninsula State* and the *Lone Star State* being of the 535-foot class, of which twenty-three were ordered by the Shipping Board during the war emergency. They were designed to carry approximately 200 cabin and 300 third-class passengers and were equipped with every modern improvement for comfort and speed.

The *Lone Star State* was given a successful trial trip shortly before Christmas and was delivered to the Shipping Board on December 31.

There was a serious decline in freight rates

during the year and berth rates fell off sharply. Thus the berth rate on grain from North Atlantic ports to the United Kingdom fell from 10 shillings a quarter in January to 7 in July, 5 in October, and 4 in December, while the rate on compressed cotton declined from 90 cents per 100 pounds in January to 25 cents by December. Rates on general cargo were better maintained as a result of a liner conference, and the rate of \$1.00 per 100 lbs. from New York to Liverpool of January only fell to 75 cents by December.

Charter rates as for coal from Hampton Roads to Italy ranged from \$6.50 a ton in January to \$4.25 in December, while rates to French Atlantic ports ranged from \$5 to \$4.50.

Mention already has been made of the increased amount of commerce carried on by ships under the American flag in 1921. This was particularly true in the case of import and export trade to the Orient, Australia, India, and Africa. During the first ten months of 1921, the United States exported 2,231,932 long tons of commodities to the Orient, including in this region China, Japan, and the Philippines, and imported 531,754 tons from it. The relative share of this trade carried by American and foreign ships expressed in percentages is shown in the following table for our Atlantic Coast, Gulf Coast, and Pacific Coast, traffic, respectively:

	Imports	Exports	Grand total
Atlantic—			
American	31	41	38
Foreign	69	59	62
Gulf—			
American	..	45	45
Foreign	..	55	55
Pacific—			
American	50	56	55
Foreign	50	44	45

The receipts and shipments at the Pacific Coast accounted for practically half of the American foreign trade with the Orient, and on this trade route American ships carried 50 per cent of the imports, 56 per cent of the exports, and 55 per cent of the total trade. This activity declined in the later months of the year as, while American ships carried 72 per cent of the cargo in January it was but 42 per cent in September and October.

On the other hand, the performance of American ships in the Orient-Atlantic Coast trade, showed improvement after May. In October they carried 52 per cent of the traffic, and for the ten months as a whole 38 per cent.

American trade with Australia amounted for the ten months' period to 530,692 long tons, largely exports. The relative percentages of this trade for ten months carried by American and foreign ships to and from our respective coasts are shown in the following table:

	Imports	Exports	Grand total
Atlantic—			
American	52	15	22
Foreign	48	85	78
Gulf—			
American	..	100	100
Foreign	..	..	..
Pacific—			
American	52	51	51
Foreign	48	49	49

American trade with India for the first ten months of 1921 amounted to 865,340 long tons,

about evenly divided between imports and exports.

The comparative percentages of this trade for ten months carried by American and foreign vessels are shown in the following table for our three shipping coasts, respectively:

	Imports	Exports	Grand total
Atlantic—			
American	16	10	13
Foreign	84	90	87
Gulf—			
American	74	70	72
Foreign	26	30	28
Pacific—			
American	60	48	54
Foreign	40	52	46

The following table gives the relative percentages of United States trade with Africa, leaving out of consideration the northern coast for ten months carried by American and foreign ships between this region and the respective trading coasts of the United States:

	Imports	Exports	Grand total
Atlantic—			
American	30	18	20
Foreign	70	82	80
Gulf—			
American	100	22	38
Foreign	..	78	62
Pacific—			
American	..	63	63
Foreign	..	37	37

Imports and exports for this region amounted to 728,091 long tons, of which 516,897 tons were exports from the Atlantic Coast. On this trade route American ships carried 20 per cent of the cargo moving during the first ten months of 1921.

NEW SHIPPING COMPANIES. The aggregate indicated investment in shipping companies of various descriptions formed during 1921 was \$60,190,000. The total for the year compared with \$585,400,000 recorded for 1920 and reflected very strongly the slump which had affected the shipbuilding and shipping industries as a result of the worldwide business depression. See SHIPBUILDING.

SHIPWRECKS. See SAFETY AT SEA.

SHOES, SHOE INDUSTRY. See BOOTS AND SHOES.

SHOOTING. Nicholas Arie of Kingman, Ariz., the national amateur championship at the Grand American Handicap Tournament held at the South Shore Country Club, Chicago, in August. The Amateur doubles title went to R. A. King of Delta, Colo., after a double shoot-off with Samuel S. Sharman of Salt Lake City, Utah. Fred S. Tomlin of Glassboro, N. J., captured the professional contest at 18 yards, while Arthur Killam of St. Louis, Mo., won the national singles professional championship. The women's singles resulted in a victory for Mrs. Toots Randall of New York City.

The annual matches of the National Rifle Association of America were held at Camp Perry, Ohio. The winners in the principal events were: team match, U. S. Marine Corps; individual, Otho Wiggs, U. S. M. C.; team, pistols, U. S. Marine Corps, A. E. F.; individual, Sergt. J. M. Thomas, U. S. M. C.

In an international free rifle match contested at Lyons, France, the United States won first place with a score of 5015. Switzerland was second with

4993 and France third with 4609. The individual honors fell to Walter R. Stokes, a civilian contestant from Washington, D. C.

SHREWSBURY, EARL OF. CHARLES HENRY JOHN CHETWINDY-TALBOT, EARL OF SHREWSBURY AND EARL OF WATERFORD. British peer, died, May 17. He was known in England as the first person to introduce hansom-cabs fitted with noiseless tires in London and Paris. He was born in London, Nov. 13, 1860, and educated at Eton.

SIAM. A monarchy of southeastern Asia between 6° and 20° S. latitude and 97° and 106° E. longitude; about 1200 miles long from north to south and 480 miles broad. Capital, Bangkok.

AREA AND POPULATION. Area, about 195,000 square miles; population (1915-16), 8,819,686; estimated (1918-19) 8,924,000. Population of Bangkok was estimated at 628,675, of whom 200,000 were Chinese; population of the island of Puket, about 179,600.

PRODUCTION. The chief product is rice. In the fiscal year ending March 31, 1920, the export of rice amounted to 441,039; valued at £10,911,586. Other products are: Cotton, tobacco, peas, corn, sesame, hides, pepper, salt, dried fish, gamboge, and there is a large variety of fruits. Mineral resources are extensive and include: Coal, iron, zinc, tin, tungsten, wolfram, antimony, and manganese. There is a considerable exploitation of tin on the island of Puket. Great improvement in economic conditions was indicated in 1921. This was shown in the return of the rice crops to normal production after two years of failure. In 1919 the rice situation had been so serious that it was necessary to place an embargo on the export of rice and this embargo was not lifted until Jan. 1, 1921.

COMMERCE. The following information was supplied by the United States Bureau of Foreign and Domestic Commerce: Never before did the trade of Siam show such an adverse balance as that indicated by the trade figures for the calendar year 1920. The aggregate value of all imports from foreign countries amounted to 142,249,301 ticals (\$52,760,268), while the totals for the exports reached only 54,609,101 ticals (\$20,254,516), giving a negative trade balance of 87,640,200 ticals (\$32,505,750). This unsatisfactory position was entirely due to the failure of the rice crop for the season of 1919-20 and the subsequent prohibition of its export to foreign countries. The serious results caused by this failure may be judged by the fact that the chief agricultural product of the kingdom is rice and its export forms the main source of wealth to the country, and, in addition, it is the national food. The proportion of the rice exports to all other exports from the kingdom to foreign countries was 100,000,000 ticals worth of rice to 17,000,000 ticals worth of all other exports in 1913, 86,000,000 to 17,000,000 in 1915, 96,000,000 to 20,000,000 in 1916, 103,000,000 to 25,000,000 in 1917, 88,000,000 to 29,000,000 in 1918, 189,000,000 to 45,000,000 in 1919, and 6,000,000 to 48,000,000 in 1920.

COMMUNICATIONS AND FINANCE. Vessels cleared at the Port of Bangkok in 1919-20 numbered 639 of 581,230 tons. The state railways, March 31, 1919, were given at 2376 kilometres (1 kilometre equals 0.621 mile), of which 2215 kilometres were open for traffic. The budget estimates for the fiscal year ending March 31, 1921,

were: Ordinary revenue, \$26,825,000; ordinary expenditure, \$30,388,147. See preceding YEAR BOOK.

GOVERNMENT. Executive power is vested in the king (nominally hereditary) who acts by the advice of a cabinet, made up of the heads of the departments, many of whom have been members of the royal family. There is a legislative council of 40 members, appointed by the crown, including not fewer than 12 ministers of state, but royal assent to legislation is required. The administration is divided into 18 provinces or monthons, of which 17 are each under a lord-lieutenant whose authority is directly derived from the king, and one is a district under the ministry of local government. Formerly the tributary districts were under local chiefs, but the administration has been increasingly centralized. King in 1921, Rama VI, crowned, Dec. 2, 1911. In 1904 about 7800 square miles of Siamese territory passed under the control of France, and in 1907 boundary arrangements were agreed upon by which the French territory of Cambodia gained about 7000 square miles. France also acquired the four ports on the Mekong river to be held on a perpetual lease. Attempts to introduce western civilization have been made during recent years through the assistance of an adviser in foreign affairs (of American nationality); a judicial adviser (British); a legislative adviser (French); and legal advisers of other nationalities. There is also a British financial adviser and many British and European officers in the various departments.

SIBERIA. The northern Asiatic part of Russia. Area, 4,831,882 square miles; population, estimated, Jan. 1, 1915, at 10,377,900, giving a density of 2 per square mile (later estimates placed it at 10,510,200). Chief cities: Irkutsk (population, 129,700); Tomsk (116,664); and Vladivostok (91,464). Nearly 70 per cent of the inhabitants are settled in the agricultural regions of western Siberia. The Great Trans-Siberian Railway, begun in 1891, establishes communication between western Europe and the Pacific coast. According to estimates in 1915 about 75 per cent of the inhabitants were white. After 1918 the Japanese troops occupied portions of the country, having entered it in August of that year especially for the purpose of providing for the evacuation of the Czecho-Slovak forces and opposing the Bolshevik danger. It was understood that this occupation was merely temporary and Japanese officials repeatedly implied that the forces would soon be withdrawn. Nevertheless these troops were still on the ground during the whole of 1921, and the Japanese authorities did not fix the date of their withdrawal, though continuing to promise to withdraw. The United States government protested in May against the Japanese occupation, saying that Japan was avoiding the "scrupulous fulfillment of the assurances given to the Russian people." Japan's attitude implied that it was determined to be the sole judge as to the proper time to withdraw. The subject was under discussion at the time of the Disarmament Conference, in connection with the demand of the Far Eastern Republic (Chita) for recognition. See RUSSIA and WAR OF THE NATIONS.

SIERRA LEONE. A British colony and protectorate on the west coast of Africa with Liberia on the east and French Guinea on the north, including the peninsula which terminates in the

cape of the same name and constitutes Sierra Leone proper. Area, about 4000 square miles; population (1911), 75,572, of whom 702 were whites. The chief town, Freetown, had a population (1911) of 34,090. In addition to the colony there is a protectorate, proclaimed August 21, 1896, and administered under provisions of March 7, 1913, with an area of 27,000 square miles; and a population (1911) of 1,327,560. Chief imports of the colony in 1919 were: Cotton manufactures, coal, tobacco, spirits, and kerosene; and chief exports were: Palm kernels and palm oil, kolo nuts, and ginger. No later statistics for trade and finance were available than those given in the last YEAR BOOK. The tonnage of vessels, entered and cleared, in the foreign trade in 1919 was 2,016,699, of which 1,953,760 were British. The government railway, open from Freetown to Pendembu near the Liberian border was 227½ miles in length and further extension was projected. Governor at the beginning of 1921, R. J. Wilkinson.

SIFTON, ARTHUR LEWIS. See NECROLOGY.

SILESIA. The name of a former division of the Austro-Hungarian monarchy and also of a province of Prussia. The former was a crown-land of Austria, with an area of 1988 square miles and a population, Dec. 31, 1910, of 756,949. After the late war it became a part of the new republic of Czecho-Slovakia (q. v.). The Prussian province of Silesia was the largest division of Prussia, with an area of 15,573 square miles and population (1910) of 5,225,962. After the war Upper Silesia was made the subject of a plebiscite, and the decision was rendered in 1921 (see UPPER SILESIA and POLAND). Measures were being taken under the award of the League of Nations for determining the frontier. In 1920 the area of Lower Silesia in Prussia was given at 10,270 square miles, and of Upper Silesia, at 4998 square miles, and the populations were given in 1919 at 2,987,904 for Lower Silesia, and 2,283,992 for Upper Silesia. See also the articles on WAR OF THE NATIONS in this and preceding YEAR BOOKS.

SILK. The silk industry in 1921 suffered from a number of circumstances peculiar to itself as well as due to the general commercial situation. Reference to the accompanying table of raw silk production will show that the 1920-21 crop was the lowest in a number of years, and that while Europe, especially France and Italy, were returning to normal production, elsewhere in the world there was a marked decline. As also shown in the table over 50 per cent of the raw silk of the world's commerce was produced in Japan, and the condition of the industry there certainly was serious in the latter half of 1920 and 1921. In September, 1920, in view of the rapid decline taking place in values, the average price in July was more than 60 per cent below the quotation for January, the government established a syndicate, the Teikoku Sanshi Kaisha, to support the market by a pegged price at which surplus stocks were supposed to be taken. Furthermore in November of 1920 the filatures, or establishments for reeling the silk from the cocoons, were shut down. An arbitrary price of 1500 yen or about \$6.00 for Sinshiu was fixed and maintained and under such conditions the year 1921 opened. Up to February 15 the syndicate was able to take about 30,000 bales at a time when there were about 75,000 bales in the

market, but with financial assistance and with the authority of the government the standard price was maintained, though at times seriously threatened. In April the Teikoku Sanshi Kaisha was instructed to buy 70,000 bales more until May 31, it being arranged that the money would be raised by two semi-official banks and guaranteed by the government. The scale of prices was maintained for the greater part of the year, but only a normal business was done. Naturally this condition reacted on the silk growers and they were less active, which fact along with the cool summer tended to reduce the output. Accordingly in 1921 there was a cut of some 10 per cent in the crop of spring cocoons and of 16 per cent in the summer and fall cocoon crops. All of this seemed to indicate that before the beginning of the 1921-22 season there would be considerable progress toward the restoration of normal conditions in the raw silk market.

With the price of raw silk mounting towards the end of the year the consumers and particularly the manufacturers were forced to face a serious readjustment, and when raw silk reached \$8.00 a pound there was a question as to how far the buying public would go in the increased prices bound to result. Accordingly with the American public educated to the increased use of silk the manufacturer had to consider most carefully the matter of prices. In 1921 there was a greater demand for and production of silk hosiery and underwear, while there was poor business in broad silk. During the year the most popular dress fabric of silk was Canton Crepe which enjoyed greater favor than georgette. This was being made not only in popular shades of black, navy blue, brown and gray but with Jacquard patterns. In 1921 there was considerable activity in ribbons, in fact the best year ever experienced in this field as not only was there an active demand for the first half of the year but many new uses for ribbons were found.

ARTIFICIAL SILK. The production of artificial silk in the United States in 1921 was estimated at about 20,000,000 lbs., which output was twice that produced in 1920, and may be compared with a total world production of 26,000,000 lbs. in 1914. About 18,000,000 pounds of the 1921 American production came from a single company which put a new plant into operation at Lewistown, Pa., and made plans for doubling the capacity of its older plant at Roanoke, Va. Furthermore this company, the Viscose Co., had acquired a portion of the former U. S. government powder town of Nitro, W. Va., comprising 52 acres and 3 pulp mills, and here it proposed to make its pulp from cotton linters. Another concern, the du Pont Fibersilk Co., began production at its Buffalo plant in July, these works having a capacity of 1,500,000 pounds a year. At Hopewell, Va., the Tubize Artificial Silk Co. of America began to operate in June, 1921, and the product for this second half of the year amounted to over 800,000 pounds. This plant which had a capacity in 1921 of 8000 lbs. a day was to be so developed that it would turn out eventually 30,000 lbs. a day if required. This plant used the Clardonnet, or nitro-cellulose, process as employed by the original Tubize Co. in Belgium where some Americans were trained in order to work as instructors in the new plant. This in 1921 employed about 1500 operators. Still another new company was the Industrial Fibre Co. of Cleveland, Ohio, which towards the

end of the year commenced production for which there was a ready market. There were also several cellulose acetate plants in operation which made a wide range of artificial silk products of special characteristics and uses. Between 30 and 40 per cent of the production of artificial silk is said to go into hosiery, some 30 per cent into other knit goods, and perhaps 40 per cent enters into cloth and miscellaneous uses. The American product was said to be superior to the European and the industry was better organized and more efficient than in Europe. See COTTON; WOOL; TEXTILE MANUFACTURING.

SILVER. The production of silver in the United States in 1921 was estimated at about 50,364,000 ounces as compared with 55,361,000 ounces in 1920. The main sources of supply are indicated in the accompanying table. The silver mines of Nevada during the year fared well as the closing of the copper mines and the depression in the lead and zinc industries (q. v.) reduced the supplies from these sources. While there was a marked decline in price in 1921 as compared with 1920, nevertheless American producers were concerned less with the fluctuations taking place as under the terms of the Pittman Act of April 23, 1918 (see YEAR BOOK for 1919 and 1920, article, *Silver*) they received the fixed price of \$1.00 per ounce for such silver as the government would purchase delivered at the mints, at Denver, San Francisco, or Philadelphia. On this basis the Treasury purchased about 58,563,000 ounces during the year, so that the total amount acquired since May 13, 1920 was 88,570,000 ounces. It would take about two more years to purchase the remaining amount of 119,430,000 ounces provided for under the operation of the act. Naturally with the United States Treasury as a ready purchaser exports of silver declined, amounting to but 44,430,350 ounces for the first 11 months of 1921 as compared with 107,535,300 ounces and 208,426,260 ounces for similar periods in 1920 and 1919, respectively. There was a smaller production in both Canada and Mexico, a condition reflected in the imports into the United States which for 11 months of 1921 was 57,726,767 ounces as compared with 83,434,400 ounces for a corresponding period in 1920.

Refinery Production of Silver in the United States in 1921. The Bureau of the Mint with the cooperation of the U. S. Geological Survey compiled the following preliminary estimate of the production of silver in the United States in the calendar year 1921:

State or territory	Silver ounces and value
Alaska.....	775,885
Alabama.....	4
Arizona.....	2,864,962
California.....	3,460,219
Colorado.....	5,408,272
Georgia.....	3
Idaho.....	6,716,892
Illinois.....	1,800
Maine.....	3
Michigan.....	304,616
Missouri.....	62,000
Montana.....	9,168,011
Nevada.....	6,719,465
New Mexico.....	626,334
North Carolina.....	12
Oregon.....	55,713
South Dakota.....	112,880
Tennessee.....	134,549
Texas.....	544,337
Utah.....	13,233,658
Virginia.....	7

State or territory	Silver ounces and value
Washington.....	141,244
Wyoming.....	103
Philippines.....	34,429
	50,364,389

The value of the silver is fixed at \$1.00 per ounce by the Pittman Act of April 23, 1918, for domestic product. These estimates indicate a decline in the amount of silver produced from that of 1920 amounting to 4,997,184 ounces. The record production was in 1915 when it amounted to 74,961,075 ounces of silver.

IMPORTS AND EXPORTS. The following table shows total imports and exports for 1920 and 1921:

	1921	1920	Decrease
Imports.....	63,242,671	88,080,041	24,817,370
Exports.....	51,575,399	113,616,224	62,040,825
Excess of Imports.....	11,667,272		
Excess of Exports.....		25,566,183	

PRICE. Silver varied in value greatly during 1921 as appears from corresponding table. In New York the low mark of 52½ cents was reached on March 5, while the high price of the year was scored on Oct. 17, of 73½ cents. The average price for the year was above that before the war; for example, 59.79 cents in 1913 and 60.835 cents in 1912, but as in other branches of mining costs had increased in greater proportion.

MONTHLY AVERAGE PRICE OF SILVER

Engineering and Mining Journal (New York)

Month	New York		London		Sterling exchange	
	1920	1921	1920	1921	1920	1921
Jan.....	132.827	65.950	79.846	39.985	367.082	372.650
Feb.....	131.295	59.233	85.005	34.745	337.466	385.932
Mar.....	125.551	56.023	74.194	32.479	370.870	389.806
Apr.....	119.779	59.337	68.848	34.250	392.438	391.784
May.....	102.585	59.810	60.010	34.165	383.380	396.580
June.....	90.957	58.510	51.096	34.971	393.663	377.236
July.....	91.971	60.260	53.736	37.481	385.538	362.665
Aug.....	96.168	61.597	59.875	38.096	360.404	384.505
Sept.....	93.675	66.160	59.476	40.082	350.370	371.725
Oct.....	83.480	70.970	54.197	41.442	346.460	386.315
Nov.....	77.734	68.234	50.952	38.750	342.333	396.315
Dec.....	64.774	65.760	41.845	35.645	348.101	414.880
Year.....	100.900	62.654	61.590	36.841	364.840	384.191

New York quotations cents per ounce troy, 999 fine.
London, pence per ounce, sterling silver, 925 fine.

Silver during 1921 continued to be an interesting element in international finance as well as in the currency schemes of the individual nations. The high price of silver in 1919 and 1920 (see YEAR BOOK for these years, article *SILVER*) had led to attempts to melt up currency into bullion and the various governments by legislation and otherwise sought to prevent such action. Nevertheless where the currency was depreciated on account of the vast influx of paper, silver coin naturally passed out of circulation and the governments employed the baser metals, copper, nickel, and aluminum for the subsidiary currency, or else as in the case of Great Britain reduced its fineness from 925 to 500. Germany for example melted up large amounts of coin with silver bullion which was shipped to the United States to be used as collateral for a loan.

In Russia there was a movement, so it was reported, to establish the coinage of silver, while in China and Japan there were both imports and exports. China during the year coined a certain amount of the bullion it had purchased at the previous high prices, while in India with a favorable balance of trade silver was being imported in settlement.

SIMMONS COLLEGE. A non-sectarian institution of the higher learning for women at Boston, Mass.; founded in 1899. The enrollment for the fall of 1921 was as follows: School of Household Economics, 281; School of Secretarial Studies, 580; School of Library Science, 133; School of General Science, 46; School of Social Work, 111; School of Industrial Teaching, 1; School of Public Health Nursing, 107; Graduate Students, 3; total, 1242. The enrollment for the summer session was as follows: School of Household Economics, 75; School of Secretarial Studies, 109; School of Library Science, 57; total, including one duplicate, 230. The faculty contained 121 members including 7 additions. The productive funds amounted to \$2,460,955, and the income to \$94,483. The library contained 33,000 volumes. A campaign for additional endowment was being carried on. President, Henry Lefavour, Ph.D., LL.D.

SIMMONS COLLEGE. An institution of the higher learning at Abilene, Texas; founded in 1891. The enrollment for the fall of 1921 was 963. The faculty numbered 31. President, Jefferson D. Sanderfer, LL.D.

SINDING, CHRISTIAN. See MUSIC, *Artists, Instrumentalists.*

SINGAPORE. See STRAIT SETTLEMENTS.

SINN FEIN. See IRELAND.

SKATING. Joe Moore of New York City was crowned international skating champion of 1921 in races held at Lake Placid, N. Y. Moore won the half-mile, mile, and two-mile events. In the three-mile race Roy McWhirter of Chicago established a new world's amateur record of 8 minutes, 45 seconds. The national title was won by Charles Jewtraw of Lake Placid in contests at Saranac Lake. Jewtraw was victor in the 220-yard, 440-yard and 3-mile events, scoring a total of 120 points. Roy McWhirter was second with 90 points. Miss Gladys Robinson of Toronto, Canada, captured the women's international title, while the women's national championship was gained by Miss Elsie Muller of New York City. In the indoor international championships held at Pittsburg, Moore and Miss Robinson were the title winners.

A figure skating tournament was held at Philadelphia, Mrs. Theresa Weld Blanchard of Boston Mass., and Sherwin C. Badger also of Boston winning the senior women's and men's honors respectively. The waltzing and two-step events went to Nathaniel C. Niles and Mrs. Blanchard.

SKIFF, FREDERICK JAMES VOLNEY. Museum director, died, February 24. He was born at Chicopee, Mass., Nov. 5, 1851; went into newspaper work at Lawrence, Kan., in 1870; joined the staff of the *Denver Tribune* in 1877; and became manager of that paper in 1881. He was a member of the Colorado legislature from 1885 to 1886, and commissioner of immigration and statistics for the State in 1889. He became an authority on the resources of the State and was appointed a member of the Chicago World's Exposition

Commission in 1890. After 1894 he was director of the Field Museum of Natural History in Chicago. He was an organizer of exhibits in various important State and other expositions, and was director-in-chief of the Panama-Pacific Exposition at San Francisco in 1915, and United States commissioner-general to the Japanese Exposition in 1917. He received many honors from foreign countries for his services as an expert.

SLAVIC LANGUAGES. See PHILOLOGY, MODERN.

SLAVONIA. See CROATIA AND SLAVONIA.

SLEICHER, JOHN ALBERT. Editor, died, May 5. For twenty-three years he was editor of *Leslie's Weekly*. He was born at Troy, N. Y., Oct. 4, 1848, and was city editor of several Troy papers and manager of the State Associated Press. Later he became editor-in-chief and part owner of the *Albany Evening Journal* and editor-in-chief of the *New York Mail and Express*. In 1889-93 he was Civil Service Commissioner of the State of New York. During the latter part of his life he was editor-in-chief of *Leslie's Weekly* and president of the Leslie-Judge company.

SMALLPOX. Recently studies in the epidemiology of this disease have led to a classification based on the severity of the infection with special regard to the incidence in Africa. An East African type which extends into Asia is especially virulent and vaccination exerts only a restricted preventive power. The failure of vaccination in tropical lands is sometimes due to the impossibility of obtaining fresh virus or to decomposition of virus, but this factor is not mentioned in the present connection. The type of disease which prevails in Western Africa is much milder and it is believed that the relatively mild smallpox which prevails in certain localities of Europe is of this type. The so-called South African type is notably mild and its virulence does not seem to be increased in epidemics. This is evidently the Kaffir pox or *alastrim* which is also found in the West Indies; attempts have often been made to show that it is not smallpox at all. During the war the vaccinated German soldiers who encountered the disease in Poland in virulent form remained entirely immune; they had been revaccinated just before the campaign. When smallpox attacked Vienna in 1915 its victims were almost entirely among unvaccinated subjects or those who had not been vaccinated for years. The Paul method of diagnosis of smallpox from simple pustular affections by vaccinating the cornea of the rabbit has come into use in various parts of the world; and this simple test is able to prevent a smallpox scare with its resulting quarantine and interruption of business. Very recently the positive inoculation of the wattles of the domestic cock has been found of the same value. Under the head of treatment the local application to the entire affected skin of a saturated solution of potassium permanganate has been especially commended. *Il Polidinicco*, practical section, Nov. 21, 1921.

SMITH, FREDERICK H. Capitalist, died 1921. He was born at Buffalo, N. Y., in 1869; and graduated at the De Veaux College. He was an officer in important banks and other corporations in the middle west, and prominent in Republican politics in Illinois. In the campaign of 1908 he was chairman of the finance committee of the Republican National Committee.

SMITH, JEREMIAH. University professor of law, died, September 4. He was born at Exeter, N. H., July 14, 1837, graduated at Harvard in 1856 and was admitted to the bar in 1861. He practiced law at Dover, N. H., 1861-67 and was justice of the supreme court of New Hampshire, 1867-74. He was professor of law at Harvard University 1890-1910 after which he became professor emeritus.

SMITH, MILTON H. Railway president, died, February 20. He was born in Green County, N. Y. Sept. 12, 1836; and entered the railway service as a clerk in the superintendent's office of the Mississippi Central Railway, rose through the various grades on that and other southern roads and became general manager in 1883 and president in 1884 of the Louisville and Nashville Railroad.

SMITH COLLEGE. A non-sectarian institution for the higher education of women at Northampton, Mass.; founded in 1871. The enrollment for the fall of 1921 was 1999. There were 229 members in the faculty. The productive funds amounted to \$3,500,000. The library contained 92,000 volumes. President, William Allan Neilson, Ph.D., LL.D.

SMITHSONIAN INSTITUTE. See **EXPLORATION, North America.**

SMITHSONIAN INSTITUTION. Legally an establishment having as its members the President of the United States, the Vice-President, the Chief Justice, and the President's Cabinet. It is governed by a Board of Regents consisting of the Vice-President, the Chief Justice, three members each of the Senate and House of Representatives, and six citizens of the United States appointed by joint resolution of Congress. It was established by statute in 1846 under the terms of the will of James Smithson of England, who bequeathed his fortune in 1826 to the United States to found an institution "for the increase and diffusion of knowledge among men." The Institution has charge of the National Museum, the National Gallery of Art, the International Exchange Service, the Bureau of American Ethnology, the National Zoological Park, the Astrophysical Observatory, and the United States Regional Bureau for the International Catalogue of Scientific Literature.

The report of the secretary, who is the executive officer of the Institution, showed an income in 1921, including interest on investments and other revenues, bequests, etc., of \$185,621.13. The total permanent fund as of June 30, 1921, was \$1,157,562.05.

One phase of the Institution's work has been the scientific exploration of little-known parts of the earth, as well as field-work in better-known regions. Geological field-work in the Canadian Rockies was continued in 1921 with two main objects in view: (1) the determination of the character and extent of the great interval of non-deposition of sedimentary rock-forming material along the front range of the Rocky Mountains west of Calgary, Alberta; and (2) the clearing up of the relations of the summit and basis of the great Glacier Lake section of 1919 to the geological formation above and below. Work was begun early in July along the Ghost river northeast of Banff, Alberta. In the overthrust of the Rocky Mountain front, great headlands and high buttes have been formed by running water and rivers of

ice. The first of these great cliffs was found to be of lower Middle Cambrian age, and resting on its upper surface there were 285 feet of a yellowish weathering magnesian limestone, representing the interval between the Cambrian below and the Devonian above. During the year Dr. R. S. Baseler, curator of paleontology, National Museum, carried on field work and succeeded in securing two much-desired specimens, one a large well-preserved fossil elephant skull, the other a highly fossiliferous limestone slab of Silurian age quarried out by him near Oxford, Ohio. The latter has long been desired to show the advancement in life from the primitive Cambrian forms to the higher and more complex species of succeeding geological periods. The African expedition, in conjunction with the Universal Film Manufacturing Co., concluded its work shortly after the beginning of the fiscal year. Specimens were turned over to the Museum as follows: 697 mammals (152 from Lake Tanganyika); 575 birds, 206 reptiles, and 193 fishes. These collections are of unusual interest on account of the manner in which they supplement those obtained by other expeditions to Africa. Dr. H. L. Shants of the Department of Agriculture accompanied the expedition with the objects in view of securing live plants of agricultural value for introduction into this country, of studying agricultural methods of both natives and Europeans and of collecting plants for the National Herbarium. Over 1000 botanical specimens were secured for the Museum and about 1600 plants were collected for growth in this country, consisting of forage plants, nut plants, fruits, and vegetables. Charles M. Hoy continued his work of collecting specimens of the fauna of Australia, important for the reason that it is rapidly being exterminated through various causes. Collections consisted of 440 mammals, 570 bird skins, with 24 additional examples in alcohol, and smaller collections of reptiles, amphibians, insects, marine specimens, etc. On the way to the First Pan-Pacific Scientific Congress in Honolulu, Dr. Paul Vartsch, curator of mollusks, made investigation of shipworms at Mare Island, Calif. It was discovered that the mollusk which had caused considerable damage in 1920 was a new species of *Teredo*, which he named *Teredo beachi*. Dr. A. S. Hitchcock, custodian, section of grasses, performed several months' botanical work in the Orient under the auspices of the Department of Agriculture. The purpose of the expedition was (1) to study the grasses of the Philippine Islands to prepare the manuscript on the grasses for a flora of the Islands, and (2) to study the native and cultivated bamboos of the Philippines, Japan, and China, with special reference (1) to their introduction into the United States, and (2) to the publication of a revision of the economic bamboos of the world. There were issued during the year by the Institution and its branches 113 volumes and pamphlets. Of these publications, there were distributed a total of 142,208 copies. They covered practically every branch of science and were distributed to libraries, educational and scientific establishments and interested individuals throughout the world. Accessions to the library of the Institution during the year numbered 11,948 volumes and pamphlets; many of these consisted of publications issued by several foreign countries during the year 1914 to 1920 which had been held awaiting normal trans-

portation facilities. Two new branch libraries were created in 1921: the National Gallery of Art Library, and the Freer Gallery of Art Library.

NATIONAL MUSEUM. As a result of the separation of the National Gallery of Art from it in 1920, there was considerable reorganization of the Museum. As now constituted, it comprises 4 scientific and technical departments, one independent division, with a total of 49 recognized subdivisions. Of the many interesting accessions may be mentioned the following: a collection of rare Mission Indian baskets; a collection of stone fetishes and ancient pottery from Santo Domingo; a collection of Japanese mollusks; a quantity of South American material comprising Bolivian tin and tungsten ores, rare copper minerals from Chile and a series of ores from Argentina; a collection of many beautiful specimens of silks, fur fabrics, plushes and velvets and fabrics used in the construction of aeroplanes by the division of textiles. The total number of specimens acquired during 1921 was 338,120. About 25,000 specimens were sent out in exchange and 6000 distributed as gifts to schools and colleges; the latter consisted of ores and minerals, mollusks, marine invertebrates, fishes, birds, insects, pottery and prehistoric implements.

Looking toward promotion in the administration, development and utilization of the National Gallery of Art, now a separate branch of the Institution, an art commission was formed in 1921. Its function includes the acquisition of material, a study of best methods of exhibition and utilization for instruction. The work of the Freer Gallery of Art consisted in unpacking and checking the large and varied collection of objects turned over to it under the will of Charles L. Freer. The International Exchange Service reported 475,471 packages passing through its service during the year, an increase of 82,099 over the preceding year; the increase was due principally to the reopening of relations with Germany. The packages were classified into parliamentary documents and miscellaneous scientific and literary publications of the United States and foreign countries.

NATIONAL ZO-OLOGICAL PARK. This department has now on exhibition a greater number of animals and species than ever before. The total number of accessions during the year by gifts, births, transfer, purchase and capture was 613, so that less losses by exchange, death, and return of animals on deposit, the number of animals at present is 1545, classified as follows: mammals, 541; birds, 901; reptiles, 103. Considerable repairs and improvements were effected during the year and much needed additional equipment installed in the Park in 1921.

The work of the Astrophysical Observatory consisted in the preparation of manuscript for Volume IV of the *Annals of the Observatory*. The year was marked by the transfer of the solar radiation measurements from Mount Wilson, Calif., to Mount Harqua Hala, Ariz., to secure more perfect weather conditions. Charles D. Walcott, 1743 22nd Street, Washington, D. C. is secretary of the Institution.

SMYRNA. A city and district in Asia Minor which in 1921 was under the military occupation of the Greeks. It is the centre of the fig-raising industry and the tobacco trade, supplying a large part of the Turkish tobacco consumed abroad.

Agriculture has been backward, but the Greeks were endeavoring to introduce new methods and modern machinery, and according to press reports were achieving some success. A plan for agricultural credit was worked out in 1921 by the Greek minister of agriculture.

SMYTH, JULIAN KENNEDY. Clergyman, died, April 5. He was born in New York State in 1856; and was pastor of the Church of New Jerusalem (Swedenborgian), New York, and president of the general convention of the Church of New Jerusalem. He wrote: *Footprints of the Saviour* (1886); *Swedenborg* (1911); *Religion and Life* (1911); *The Heart of the War* (1911); *Christian Certainties of Belief* (1916).

SOCER. See FOOTBALL.

SOCIAL ECONOMICS. See CHILD LABOR; HOUSING; LABOR LEGISLATION; OLD AGE PENSIONS; STRIKES AND LOCKOUTS, etc.; also LITERATURE, AMERICAN AND ENGLISH.

SOCIAL INSURANCE. The most important event of the year in the field of general social insurance was the passage by Congress of the Sheppard-Towner bill providing for Federal-State coöperation in maternity and infancy protection. The law, as summarized in the *American Labor Legislation Review* for December, creates a board of maternity and infant hygiene which is to consist of the Surgeon-General of the United States Public Health Service, the United States Commissioner of Education, and the Chief of the Children's Bureau as the executive officer. For the first year \$480,000 is appropriated, \$10,000 to be given outright to each State; in addition \$1,000,000 is appropriated for division among the States in proportion to their population. For each of the five succeeding years \$240,000 is set aside—\$5000 to be given outright to each State each year and in addition \$1,000,000 annually is appropriated for distribution. The Federal Children's Bureau receives each year \$50,000 for administrative expenses. With the exception of the outright allotments, no State can receive a federal grant without a dollar for dollar appropriation. State child hygiene divisions, where they exist, are to administer the act. When the bill became law on November 23, six States—Delaware, Minnesota, New Hampshire, New Mexico, Pennsylvania, and South Dakota—had already made legislative provision for the immediate acceptance of the aid now extended in the Federal act.

New York State in April passed a law allowing municipal corporations to appropriate money for pre-natal and maternity care, but made no provisions for accepting Federal aid. Indiana passed a law requiring the approval by the commissioner of insurance of all group insurance policies covering employees, and declaring such policies or the proceeds thereof free from attachment, garnishment, or other process. Porto Rico created a savings and loan association covering all regular employees of the government, unless they should signify their desire to do otherwise, within a specified time. Funds are obtained by a monthly deduction of 3 per cent of each employee's salary and by special assessments of 50 cents from all members. The amount so deducted with interest thereon is paid upon the employee's death to his successors. All loans are made on a charge of 6 per cent. There is also provision for disablement compensation unless the individual is pro-

tected under the workmen's compensation law.

FOREIGN; FRANCE. According to information furnished by Mr. Ernest Greenwood, the International Labor Office, at the request of the French government, organized a special arbitration commission for the purpose of arranging the transfer of all social insurance funds accumulated in territories ceded by Germany, such as Alsace-Lorraine to France and Posnania to Poland. Workers in these territories who were insured against sickness, accidents, old age, and invalidity had been paying their contributions for years. If claims under this insurance were to be paid and if pensions were to be continued, Germany must transfer to all insurance bodies the accumulated funds. On March 2, 1921, the French cabinet approved a social insurance bill drafted by the minister of labor, which if passed by the Chamber of Deputies was to provide France with a comprehensive social insurance system for which, had it not been for the annexation of Alsace-Lorraine, its citizens would perhaps have had to wait for decades. When France annexed Alsace-Lorraine she had either to deprive the workers in these provinces of the benefits of the German social insurance system, or extend to all of France the insurance system which hitherto was in force in Alsace-Lorraine. The government decided to follow the latter course. The bill was based on compulsory insurance. All French wage workers and salaried employees as well as small tenant farmers whose annual income does not exceed 10,000 francs (\$1930, par) were compulsorily subject to insurance. Farmers and small independent tradesmen below 30 years of age might insure voluntarily and receive the same benefits. The insurance grants medical aid and pecuniary benefits in case of sickness, birth allowances, pensions for invalids and persons over 60 years of age, and death benefits to survivors. The funds for paying benefits were to be raised through equal contributions of the insured persons and their employers supplemented by state subsidies.

POLAND. A sickness insurance law was enacted in Poland on May 19, 1920. In many respects the provisions of the law are similar to those of the German sickness insurance law. They differ, however, in the following points: In Poland district sick funds are the carriers of sickness insurance. Local sick funds may be established only in cities with more than 50,000 inhabitants. All other sick funds, such as establishment and guild sick funds, are considered as dissolved. New creations of such funds may not take place. The insurance is compulsory for all workers, without regard to their income. Only statutory government officials are exempt from the obligation to insure. Salaried employees in managing positions (directors, managers, etc.) with an annual income in excess of 30,000 marks (\$7,140, par) may, on request, be exempted. For additional information, see **WORKMEN'S COMPENSATION**, and **OLD AGE PENSIONS**.

SOCIAL WORK. A conference of national social agencies on the Coördination of National Social Work was held in Washington, D. C., on April 14, 1921, which was attended by approximately 150 persons representing various national bodies engaged in the promotion of social welfare, including a number of Federal departments. In accordance with recommendations made by the

executive committee of the National Information Bureau (see **CHARITIES**), the delegates ranged themselves into the following functional groups for the consideration of plans looking to greater efficiency, economy, and better coördination of national social work: Health; general child welfare; family welfare; delinquency and correction; community organization; rural social life; racial advance; problems relating to the immigrant; industrial and economic problems.

THE AMERICAN ASSOCIATION FOR ORGANIZING FAMILY SOCIAL WORK. This organization endeavors, as its name implies, to be of service in the development of better standards of social service throughout the land. Under the direction of the executive staff it publishes the monthly magazine, *The Family*, which has a circulation of approximately 1500; the yearly *Directory of Family Social Work Societies*; and occasional pamphlets for educational purposes. The field staff consists of six workers, with headquarters in the following cities: Denver, Chicago, New Bedford, and New York. For the fiscal year ending September 1, the field staff reported 198 visits made to 145 cities, in 13 of which it conducted community surveys; the organization of 6 new societies; the reorganization of 7, and assistance on conducting 11 intercity or regional conferences. The field visits were scattered over 27 States, and the total number of cities advised by correspondence was 362. Six States hitherto untouched have been given incentive toward organized social work, and at the request of the Ohio Council of Family Social Work, intensive work has been undertaken by the Association in that State. This year has also shown an increase in the Association's membership. Sixteen new member societies have been admitted and one society has withdrawn, making a total of 201. The Association headquarters are at 130 East 22nd Street, New York City. Mr. David H. Holbrook is the executive director.

NATIONAL CONFERENCE OF SOCIAL WORK. The 48th annual meeting of the National Conference of Social Work was held in Milwaukee, Wisconsin, June 22-29. It continued its policy of adopting no resolutions even (though three were presented) on such subjects as disarmament, prohibition, and unemployment; believing education rather than propaganda to be the more effective means of promoting better social work. As formerly, each general session was assigned to one of the divisions for the purpose of presenting to the whole body of social workers the latest and most generally applicable discoveries made in the special fields. Some of the addresses were: Does social work promote social progress? Allen T. Burns; Educational ideals and public welfare, L. D. Coffman; What's on the Worker's Mind? Whiting Williams; Our nation's obligation to her children, Julia C. Lathrop. A good idea of the scope and nature of the conference as well as an indication of the trend of social thought in general may be obtained from the following rough enumeration of topics discussed in the divisional meetings.

1. Children. New values in the field of child welfare. The scope and functions of the juvenile court in connection with the rural community, the possibilities of the public school in treating socially handicapped children and preventing juvenile delinquency.
2. Delinquents and Cor-

rection, Social Hygiene, Steps in the prevention of delinquency, the future of the criminal law, legal and social aspects of the morals court. 3. Health. Coöperation and coordination, Activities of the Red Cross, Social significance of child health work, elements in a health programme for children, government departments in their relation to health. 4. Public agencies and institutions. Prisons, state welfare programmes in relation to children, relationship between state and local governments in conducting public welfare service, relation of State to private institutions. 5. The Family. Mothers' pensions, case records, organization in small communities, mental subnormality in family case work, the responsibility of family agencies in times of industrial readjustment. 6. Industrial and Economic Problems. Women's work and wages, child labor, unemployment and its treatment, Housing, negro labor problems. 7. The Local Community. Standards on local community work, social and economic effects of the housing shortage, social revolution taking place in the Orient, the local community in the Far East, recreation systems, the library's relation to community work. 8. Mental Hygiene. Problems of normal childhood and youth, of subnormal children, of maladjusted children, mental hygiene in education, the value of mental hygiene agencies to the community. 9. Organization of social forces. Community organization, endowments—how to wisely leave them, the central council of social agencies, the confidential exchange in small cities, the community trust. 10. Uniting of Native and Foreign-born in America. Present immigration outlook, port problems in Europe and the United States, schooling the immigrant, cultural aspect of immigration (for further information concerning the nature of the National Conference, and its members—see the article in the 1920 YEAR BOOK under CHARITIES).

At the business session of the Conference a change in financial policy was adopted with a view to balancing the receipts and expenses of the organization. Individual members will hereafter be charged two dollars for the book of Proceedings of the Conference. This act, in the words of the president, will put an end to each membership costing the conference more than twice what was paid for it. Also the Conference has launched a campaign for 350 new institutional members. It hopes to cause every reputable social agency to feel as real a responsibility for the Conference as do the individual social workers. The total number of individuals and institutions represented at Milwaukee equaled something more than 1500. The total membership of the National Conference is considerably over 4000.

The National Conference for 1922 was to be held at Providence, R. I., from June 22-29. The officers of the Conference for 1922 are: Robert W. Kelso, president; Sherman C. Kingsley, first vice-president; Mrs. Martha P. Falconer, second vice-president; Gertrude Vaile, third vice-president; Charles W. Folds, treasurer; William H. Parker, secretary (25 E. Ninth St., Cincinnati, Ohio). For further developments in the field of social work, see CHARITIES; COMMUNITY SERVICE; and RED CROSS.

SOCIALISM, THE THIRD INTERNATIONAL. The congress of the Third International was held at Moscow June 17 to July 12. Several hundred

delegates were present from forty-three countries, especially in the East and the Far East, but only the heads of these delegations took part in the proceedings. The Russian Soviets had expected a crushing majority and had no doubt thought they would be able to dictate the conditions to the foreign delegates. As a matter of fact they did retain control and they succeeded in checking the efforts of those who tried to question their programme. The general result was the maintenance of the Soviet doctrine in all its purity. It was held by the dominating party that an iron discipline alone could save the situation. At a secret session the congress found that the situation in Russia was critical and that in France, England, and America, Bolshevik propaganda had not succeeded, while in Sweden and Norway the Communists had barely effected an organization. The only satisfactory results were those in Italy, Germany, and Czecho-Slovakia. In the opening speech by Trotsky, June 17, he admitted these conditions but nevertheless expressed his confidence in the future, basing it on the following reasons: Europe ruined and exploited by France was exposed to the gravest dangers, and excessive prosperity of America and Japan would bring about a violent reaction. Finally the great Powers had a fatal weakness in the question of the colonies. The colonies were in fact the most important element in the revolutionary movement. The English colonies were especially vulnerable and Bolshevik propaganda must be vigorously carried on among them and among all the races of the Far East. Here was a promising field. In the distribution of funds, the larger amounts accordingly were to go to these regions. Italy, Germany, and Czecho-Slovakia were also to receive a fair allowance, but little money was to be wasted on England, America, and France.

As noted in the preceding YEAR BOOK the French Socialists at the Congress of Tours, December 30 voted by 3208 to 1220 to unite with the Third International. The minority professing loyalty to the traditions of the party as represented by the late M. Jaurès met on Jan. 7, 1921, for the purpose of reconstructing the United Socialist party. The Socialist party of Belgium rejected the Third International by a vote of 448,000 to 37,000. A Socialist congress was held at Madrid, April 14, and voted against adherence to the Third International by 8808 to 6025; thereupon the Communists withdrew.

GERMANY. The great annual National Congress of the German Social Democrats, known as the Majority Social Democrats, was held at Goerlitz, September 18-25. The language of its platform was less extreme than that of the Erfurt programme of 1891. Nevertheless it indicated plainly that the ultimate aim was a coöperative commonwealth. The Democrats were ready to take part in parliamentary action and to enter into compromises, as for example with the People's Party. The main features in the Goerlitz platform were as follows: In the first place, there was the usual general indictment of capitalism and all its works. Secondly, it was claimed that the World War had greatly hastened the concentration of industries and capital and had widened the gap of capital and labor. The bourgeois groups of profiteers, speculators, etc., created by the war were condemned and the corruption of public life was said to be increasing. There was further a tendency to super-capitalism, owing to the attempt to domin-

ate international commerce through imperialistic extension of power. The task of the Social Democracy was to point the way to the overthrow of the capitalist system and to the guarding of humanity against war by an international union of the proletariat and the creation of an international system of law. The republican form of government was the best and the Social Democrats were ready to go to the furthest limit in defending the democratic republic and maintaining the principles that had been already applied, but this was not sufficient and it must fight for the control of the state by the people and their paramountcy as an economic force. The capitalist economic system must be progressively changed into a Socialist economic system. The Social Democrats were not fighting for any class privileges but for the abolition of class rule, and land and all natural sources of power were to be withdrawn from capitalist control and placed at the service of the nation. There must be laws against slack cultivation and failure to utilize resources. Among other features of the programme may be mentioned the following: Promotion of the co-operatives for the benefit of all members; equal right to work; security of the right to organize; protection of labor; the eight-hour day in industries especially dangerous; limitation of night work for men and prohibition of it for women and minors; prohibition of all industrial labor for children of school age; equal rights of women in industry; security of the economic rights of public employees; further development of the income, property, and inheritance taxes; right of the nation to succession in case of the more distant degrees of relationship; guarantee of the democratic republic; initiative and referendum in the communities; election of the mayors for short terms; reform of the judicial system in the interest of social justice; all classes of the people to be represented on the bench; co-operation of judges elected by the people; right of the masses of the community to the highest education; complete separation of state and church, the schools to be non-religious; joint education of both sexes by both sexes; international union of the working class upon a democratic basis as the best guarantee of peace; the League of Nations to exclude no people which recognizes its statutes; international protection of all national minorities; reduction of armaments; placing of all colonies and protectorates under the League of Nations; and revision of the Peace Treaty in the sense of economic alleviation and the national right to live.

UNITED STATES. In New York City the cases of Mr. Algernon Lee and Mr. Edward F. Cassidy were decided, and on November 3 they were permitted to take their seats in the Board of Aldermen. In the election of November, 1919, the returns were counted against them although a majority for them was claimed, and charges were made on their behalf that there had been frauds against them. The committee appointed to investigate spent two years in so doing and they were kept from their seats during that period. The committee's final decision indicated a plurality for each. The majority report rendered at the time declared that no fraud had been proved, but the minority report asserted that frauds had been committed and ought not to go unpunished. The minority report also charged that the committee of investigation had taken its action only under compulsion of the courts. On November 15

under instructions from the Attorney-General's office at Washington, the government's case against Mrs. Rose Pastor Stokes was dismissed at Kansas City, where she had been convicted three years before on a charge of unpatriotic speeches and sentenced to ten years' imprisonment. She appealed from this verdict and the appeal was sustained by the United States Circuit Court of Appeals in March, 1920. The charge against her was based on the Espionage Act.

On December 23, the sentences of Eugene V. Debs and twenty-three other political prisoners convicted under the Espionage and other wartime acts were commuted by the President (see **UNITED STATES**).

SOCIETY ISLANDS. See **OCEANIA**, **FRENCH ESTABLISHMENTS IN**.

SOCIETY OF FRIENDS OF MUSIC (**BALTIMORE**). See **MUSIC**, *General News*.

SODIUM. See **CHEMISTRY**, **INDUSTRIAL**.

SOILS. The Secretary of Agriculture, in his report for 1921, calls attention to the pertinent fact that "we have taken up most of our easily cultivated land," and reminds us that if we as a Nation are to continue adequately to feed our rapidly growing population and maintain our standards of living we must practice in earnest those intensive methods of agriculture which produce more per acre at lessened cost, "having in mind constantly the maintenance of the fertility of the soil for the use of the generations to follow us."

While the Secretary recognizes that "the largest increase in production must come not from the addition of new land but from increased yields on land now under the plow," he is not unmindful of the fact that our productive area can be increased to a considerable extent by draining wet lands, irrigating dry lands, and clearing cut-over lands, but, as he points out, this can be done only at considerable expense and should be undertaken only after thorough study of the character and agricultural value of the lands. He has therefore named a committee of representatives of different bureaus of the Department of Agriculture to make a survey of the wet, dry, and cut-over lands of the United States not now utilized for the production of crops "with a view to determining how such lands can be used to increase agricultural production as needed."

A fundamental requirement in any comprehensive and efficient plan of developing agricultural production is a systematic soil survey which accurately inventories the soil resources and records its characteristics and adaptations. The United States is fortunate in having had such a soil survey in progress long enough to have covered a large proportion of the typical soil areas of the country. This survey has mapped in detail and described the characteristics and adaptations of soils over a total area of 575,406 square miles, or 368,259,840 acres. In addition reconnaissance surveys have been made covering 516,286 square miles, or 330,423,040 acres. Typical areas have been surveyed in every State and in Alaska and Porto Rico, covering approximately 950 counties and 50 reconnaissance areas. During the past year 55 surveys in 32 States were under way, the total area covered during the year being 28,104 square miles, or 17,986,560 acres. A special study of the soils of Africa was undertaken during the year.

The purpose and uses of these soil surveys are well set forth in a circular issued during the year by the American Association of Soil Survey Workers, which is made up of men in the United States and Canada who are actively engaged in soil survey work, and in the last (1920) Year Book of the Department. It is shown that the soil survey, as now conducted in this country, provides a complete inventory of the soils much as the Geological Survey inventories the mineral resources, both being fundamental to National development.

The soil maps and the detailed reports accompanying them have proved of great value not only to farmers but also to experiment station and extension workers, schools, land seekers, road engineers, manufacturers, insurance companies, bankers, and others. The maps are made on a standard scale of one inch to the mile and "show not only the different soils but accurately locate all important physical features such as roads, railroads, and streams, as well as towns, schools, churches, and farmsteads." The maps usually cover a county and all soil types are designated by distinct colors. The report accompanying each soil map "fully describes the properties of the soil and subsoil, topography, water supply, and drainage conditions, crop adaptation, general fertility, systems of farming, and methods of soil management followed. There is also included a general discussion of the agricultural development of the county, farm improvements, important products, markets, transportation facilities, and the general condition of the community. In the arid and semiarid portions of the United States, the occurrence and character of soil 'alkali,' ground water relations, irrigation problems, and other important conditions peculiar to such lands are also dealt with." A distant advantage of this soil survey is that it provides a uniform soil classification and permits of a generalized soil map of the whole country, such as is now approaching completion.

The use of the soil survey as a means of determining the agricultural extent and value of tillable lands is being extended in England and other countries, although such work has been interfered with in many European countries which formerly gave much attention to the subject, as for example, Russia, France, and Germany, by the disturbed conditions following the World War. Japan, however, which produces food for 2.5 persons per acre on about 18,000,000 acres of tilled land, has not relaxed in studies along this line.

In the field of scientific investigation on soils the year was marked by increased interest in more effective methods of studying the factors which determine soil fertility and crop adaptation. Notable recent investigations in this field have dealt with composition and variations in the soil solution, nature of the clay colloids of soils and their relation to problems of cultivation, water supply, and plant food, and the ultimate chemical composition and fertilizer requirements of important soil types.

A notable book, based upon the soil survey conducted by the United States Department of Agriculture, which appeared during the year, is *The Soils and Agriculture of the Southern States*, by H. H. Bennett (New York, 1921).

SOIL SURVEYS. See **SOILS**.

SOLDIER TRAINING IN AGRICULTURE. See **AGRICULTURAL EDUCATION**.

SOMALI COAST. See **FRENCH SOMALI COAST**.
SOMALILAND, ITALIAN. See **ITALIAN SOMALILAND**.

SOMALILAND PROTECTORATE. A British protectorate, comprising the Somali coast on the Gulf of Aden, extending from Lahadu to Bandar Ziyada. Area, about 68,000 square miles; population, about 300,000, mostly Mohammedans. The largest towns are: Berbera, with a population of about 30,000; Bulhar, 7300; and Zeyla, 7000. Live stock is the main source of wealth, the inhabitants being nomadic except on the coast. The chief exports are: Skins and hides, cattle and sheep, gum, resins, etc.; and the chief imports are: Textiles, sugar, and dates. The vessels entered in 1919-20 had a tonnage of 48,278, and cleared, 48,913. The region lacks railways, and transport is by camel. The government is administered under the Colonial Office and a local governor and commander-in-chief. Governor at the beginning of 1921, Sir G. F. Archer.

SOMERS, ORLANDO ALLEN. See **NECROLOGY**.

SONNINO, BARON SYDNEY. Formerly Italian Minister of Foreign Affairs, died in December. He was born at Florence in 1847, his mother being an English Protestant. He was brought up as a Protestant and studied at the University of Pisa. From 1867 to 1871 he was employed in the Italian legations of Madrid, Vienna, and Paris. He was several times Minister of Foreign Affairs and held the office of Prime Minister. He held no later political office after the fall of Orlando in 1919. He was much blamed by the French press, being held responsible in large part for the difficulties between France and Italy. He wrote a number of well-known works on economic subjects, winning a reputation at an early age by a book in two volumes on the Peasants of Sicily.

SOUTH, UNIVERSITY OF THE. A Protestant Episcopal educational institution at Sewanee Tenn.; founded in 1857. The enrollment for the fall session of 1921 was 202 and the summer session, 43. There were 26 members in the faculty, of which three were added at the beginning of the fall term. The productive funds amounted to \$1,051,247, and the income to \$201,891. The library contained 39,202 volumes. A new stone dormitory was opened and work on the Sewanee Inn was going on. The science departments (Chemistry, Biology, Physics) were enlarged; new equipment was installed. President, Rt. Rev. Albion W. Knight, D.D.

SOUTH AFRICA, UNION OF. A self-governing British dependency constituted by the South Africa Act of September, 1909, as a legislative union, comprising the provinces of: The Cape of Good Hope; Natal; Transvaal; and the Orange Free State. Area, 473,096, distributed as follows among the provinces: Cape of Good Hope, 276,966; Transvaal, 110,450; Orange Free State, 50,389; Natal, 35,291. Population, 1911, 5,973,394, of whom 4,697,152 were colored; estimated in 1920, 7,305,000 of whom 5,801,000 were colored. The most numerous element in the colored population is the Bantu who were placed at 4,019,006 in 1911. Cape Town is the seat of the legislature, and Pretoria is the seat of the Union administration. Cape Town had a population in 1911 of

161,759, of whom 85,442 were whites; white population in 1918, 99,693. The largest city is Johannesburg in the Transvaal with a population in 1911 of 237,104 of whom 119,953 were whites; white population in 1918, 137,166. Pretoria had a population in 1911 of 57,674, of whom 35,942 were whites; white population in 1918, 41,690. In 1919 the emigrants numbered 24,784 and the immigrants, 27,106. No later figures for public schools were available than those given in the preceding YEAR BOOK. The largest universities in point of numbers are those of Cape Town and Stellenbosch, with enrollments in 1918 of 652 and 548, respectively. Other universities are Rhodes University College, Grahamstown; Grey University College, Bloemfontein; Transvaal University College, Pretoria; Natal University College, Pietermaritzburg; University College of Johannesburg; Huguenot College, Wellington. In 1919 the professors, lecturers, etc., in all the above numbered 270 and the students, 2429.

AGRICULTURE, ETC. Returns of the agricultural and pastoral census taken in South Africa as of April 30, 1920, showed large decreases in certain classes of stock and crops from the census of 1918. These decreases were due chiefly to the severe drought that prevailed throughout the whole of the Union during 1919, and more particularly in the Cape Province, where the losses were the heaviest.

MINERAL PRODUCTION. The production of minerals for 1920 according to preliminary reports was valued at £55,194,204, an increase of £4,352,799 over 1919. The production of gold for the year showed a falling off both in quantity and value. The diamond industry which ranked second among minerals showed a falling off in quantity and an increase in value. The coal-mining industry which ranked third showed an increase in value over 1919 of £1,076,211. The preliminary estimates for 1919-20 were as follows:

South Africa is the most important gold-producing country at the present time. The mining of gold is largely in the hands of British companies and the gold is shipped to London as a commodity. Thus while South Africa was exporting great quantities of gold every year, its currency was still depreciated in terms of the dollar. The South African gold was sold in London to those countries whose exchange was most favorable and the United States being practically the only free gold market, the rate of exchange on New York was the measure of the premium which gold had over South African currency. The disappearance of that premium would deprive the miners of profits and result in the closing of the mines. In 1921 the price of raw gold was steadily declining while the cost of production was increasing. The output per operative was diminishing and the native labor supply was inadequate. Moreover, many of the mines had been sunk very deep and were reported to be approaching exhaustion. Production in ten months of 1921 while only 2 per cent lower than that of 1920 was 10 per cent lower than that of 1913. As to the diamond mines they had already closed down and were still idle in the closing months of the year.

COMMERCE. Total imports and exports for the years 1918-21, inclusive, and the year 1913 are shown in the following table.

TOTAL TRADE, 1913 AND 1918-21			
Year	Imports, £	Exports, £	
1913.....	43,792,000	66,660,000	
1918.....	51,452,000	33,168,000	
1919.....	53,124,000	99,816,000	
1920.....	105,924,000	83,628,000	
1921.....	56,122,000	58,108,000	

FINANCE. The introduction in Parliament of the annual statement of revenue and expenditure

Metal, mineral, or precious stone	1919		1920	
	Quantity, fine ounces	Value, £	Quantity, fine ounces	Value, £
Gold.....	8,331,651	35,390,809	8,158,455	34,654,922
Silver.....	891,304	203,646	892,205	224,769
	Carats		Carats	
Diamonds.....	2,592,099	11,237,778	2,551,665	14,762,936
	Tons		Tons	
Coal.....	10,261,859	3,430,361	11,473,452	4,506,572
Copper.....	4,904	1208,902	10,875	1445,007
Tin.....	1,629	1275,111	2,451	446,284
Antimony.....	32	566	.....	.....
Arsenic.....	8	663	11	635
Asbestos.....	3,934	66,426	7,112	114,195
Bismuth ore.....	.....	300	.....	.....
Corundum.....	179	1,486	261	1,446
Graphite.....	86	2,630	73	2,339
Iron ore.....	3,602	1,081	2,564	811
Iron pyrite.....	5,532	8,894	3,469	5,014
Lead ore.....	756	4,973	587	5,787
Magnetite.....	1,024	2,723	1,419	3,780
Manganese ore.....	155	776	67	277
Mica.....	3	369	1	500
Mineral paints (iron oxide, ochres, etc.).....	240	572	536	1,049
Soda.....	52	753	.....	.....
Talc.....	757	2,170	682	2,227
Tungsten.....	4	626	.....	.....
Zinc.....	.....	.....	2,349	15,614
Total.....	.....	50,841,405	.....	55,194,204

¹ The value given is calculated on the percentage of pure metal content at London quotations.

² Ore and concentrates.

³ Concentrates and metallic tin.

of the Union of South Africa for the fiscal year ending March 31, 1921, and the budget for the year ending March 31, 1922, clearly showed that during the year the revenue account did not keep up with the expenditures, and that drastic economies and new taxation had to be resorted to to meet the deficit with which the exchequer is faced. The revenue for the year amounted to £29,818,000 against an expenditure of £30,068,000, leaving a deficit of £250,000. This deficit added to the original estimates of expenditures for the year ending March 31, 1922, made a total estimate of £32,521,000. The revenue for the fiscal year 1921-22 was not expected to yield more than £25,815,000, or £8,706,000 less than the estimated expenditure. This deficit was to be met by effecting economies in various government departments to the extent of £4,057,000, while new taxation, was expected to yield £2,425,000.

RAILWAYS. The large and extensive railway systems of the States making up the Union of South Africa are owned and controlled by the government. These government lines in 1921 had a total mileage of 9559, of which there were 4254 miles in the Cape of Good Hope, 1319 miles in the province of Natal, 2644 miles in the Transvaal and 1342 miles in the Orange Free State. There was also a mileage of 1292 in Southwest Africa which was being operated at present by the South African Railways. In addition there were 651 miles of privately owned railways throughout the Union.

GOVERNMENT. Executive power is vested in a Governor-General, appointed by the Crown, who acts with an executive council, chosen by himself. The legislative power is in a parliament, consisting of a senate and a house of assembly, the former having 40 members, of whom 8 are nominated and 32 elected, 8 for each province; and the latter of 134 members, distributed among the provinces as follows: Cape of Good Hope, 51; Transvaal, 49; Natal, 17; Orange Free State, 17, the basis of suffrage being the same as that existing in the provinces at the time of the formation of the Union. The distribution of the seats of the house of assembly among the political groups after the general election of February, 1921 (see below), was as follows: South African Party, 79; Nationalists, 45; Labor Party, 9; Independents, 1. The Governor-General at the beginning of 1921 was Prince Arthur of Connaught, appointed in 1920, and the Prime Minister, General J. C. Smuts. The other members of the ministry were as follows: Interior, Public Health and Education, Patrick Duncan; Mines and Industries, Mr. F. S. Malan; Railways and Harbors, Mr. Jagger; Finance, H. Burton, K. C.; Justice, N. J. de Wet, K. C.; Defense, Colonel H. Ments; Posts and Telegraphs and Public Works, Sir Thomas Watt, K. C. M. G.; Secretary for Agriculture, Sir Thomas Smartt; Minister of Lands, Colonel Reitz.

HISTORY

GENERAL ELECTION. The most important event of the year was the general election on February 8, the issues of which were outlined in the preceding YEAR BOOK. The main point was the decision whether the Union of South Africa should continue as a dominion of the British commonwealth or should be separated from it by

secession. The party of secession or Nationalist party, was headed by General Hertzog while its opponents headed by General Smuts were made up by the Unionists and the South African party. General Smuts made a vigorous and prolonged campaign on behalf of union. There had latterly developed an increasing desire even on the part of the Dutch-speaking element, to check the racial spirit in South African politics. The result of the elections was a complete victory for the party of General Smuts.

THE QUESTION OF SOUTHERN RHODESIA. The terms of the mandate for former German Southwest Africa (q. v.) were published in February and were the subject of continued discussion on account of their bearing on the future of Southern Rhodesia. Early in the year the members of the Legislative Council of Southern Rhodesia requested that self-government should immediately be granted to the province. The Cave Commission at the beginning of the year reported on the amount due from Southern Rhodesia to the British South African Company for its administrative expenditures, fixing the sum at £4,435,225. A committee was appointed in the spring to investigate the question and it reported in May in favor of submitting the matter to popular referendum. The Rhodesian Unionist Association petitioned the Colonial Secretary in July that the terms of Southern Rhodesia's entry into the Union should be ascertained and modified in the referendum as a possible alternative to responsible self-government. General Smuts declared that the government would welcome an offer on the part of Southern Rhodesia to adhere to the Union. A delegation under Sir Charles Coghlan was sent to London from the Legislative Council and spent three months in conference with the Colonial Secretary as to the form of the proposed self-government constitution. Agreement upon a draft constitution was reached in December before the delegates returned to Africa. It was proposed that in accordance with the request of the Rhodesian petitioners a Rhodesian delegation should ascertain from the South African government the terms in which it would agree to the incorporation of Southern Rhodesia as a province of the Union, and that the popular referendum be deferred till these terms were known.

OTHER EVENTS. Among the other events of the year may be mentioned Lord Haig's visit to South Africa with a view to extending the British Empire Service League. General Smuts made a journey to London and endeavored to intervene in the settlement of the Irish question. There was a revolt among the natives known as the Israelitish movement. Sir Edgar Walton was appointed High Commissioner in London. An important anthropological event was the discovery of a prehistoric skull in Northern Rhodesia.

SOUTH AMERICA. See under the various South American countries.

SOUTH AUSTRALIA. A state of the Australian Commonwealth, occupying the central and southern part of the continent; bounded on the north by the Northern Territory, on the west by Western Australia, and on the east by Queensland, New South Wales, and Victoria. Area, 380,070 square miles; population at the census of 1911, 408,558; estimated, June 30, 1920, at 472,432. The above figures do not include the aborigines which, including those in the Northern Territory,

have been placed at over 20,000. The capital and largest city is Adelaide, with a population, including suburbs, in 1919 of 256,660. The movement of population in 1919 was as follows: Births, 11,060; deaths, 5475; marriages, 3855. Infant mortality was among the lowest in the world, being 64.01 per 1000 births. Public schools numbered 945 in 1919, with 75,681 pupils; private schools had 13,209 pupils. The principal crops are: Wheat, hay, oats, and barley. In 1919-20 their production was as follows: Wheat, 14,947,413 bu.; hay, 593,859 tons; barley, 2,339,028 bu.; oats, 1,605,568 bu. The wine output in that year was placed at 5,085,939 gallons. Executive power is vested in a governor, appointed by the Crown, who acts through an executive council or responsible ministry; and legislative power, in a legislative council of 20 members and a house of assembly of 46 members, elected on the basis of universal suffrage. In the elections of 1919 out of a total of 255,529 registered electors, 132,632 were women. Governor at the beginning of 1921, Lieutenant-Colonel W. E. G. A. Weigall; Prime Minister, H. N. Barwell. See AUSTRALIA.

SOUTH CAROLINA. POPULATION. According to the report of the census of 1920, there were 1,683,724 residents in the State, Jan. 1, 1920, as compared with 1,515,400 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	2,022,000	32,959,000	\$ 24,390,000
	1920	1,830,000	34,770,000	40,833,000
Oats.....	1921	338,000	8,112,000	5,922,000
	1920	307,000	7,368,000	7,589,000
Wheat.....	1921	118,000	1,298,000	2,700,000
	1920	107,000	1,177,000	3,001,000
Tobacco.....	1921	80,000	50,400,000	5,544,000
	1920	100,000	65,000,000	9,750,000
Hay.....	1921	402,000	366,000	7,296,000
	1920	366,000	342,000	8,501,000
Peanuts.....	1921	38,000	33,250,000	1,330,000
	1920	31,000	29,450,000	2,356,000
Potatoes.....	1921	30,000	2,550,000	3,825,000
	1920	28,000	2,800,000	5,040,000
Swt. potatoes.....	1921	83,000	7,885,000	7,096,000
	1920	76,000	7,980,000	9,337,000
Sor. syrup.....	1921	21,000	1,890,000	1,285,000
	1920	21,000	2,100,000	2,100,000
Cotton.....	1921	2,593,000	760,000	60,800,00
	1920	2,964,000	1,623,000	117,673,000

¹ Pounds. ² Tons. ³ Gallons. ⁴ Bales.

A comparative summary for the State for 1914 and 1919 follows:

	Census—		Per cent of increase, ¹ 1914-19
	1919	1914	
Number of establishments.....	2,004	1,885	6.3
Persons engaged in manufactures.....	86,350	77,693	11.1
Proprietors and firm members.....	1,664	1,815	-8.3
Salaried employees.....	5,225	3,964	31.8
Wage earners (average number).....	79,461	71,914	10.5
Primary horsepower.....	395,269	340,224	16.2
Capital.....	\$275,804,516	\$203,210,875	84.9
Services.....	73,031,843	29,051,568	151.4
Salaries.....	10,508,729	4,878,467	115.4
Wages.....	62,523,114	24,173,101	158.6
Materials.....	227,986,384	91,006,996	150.5
Value of products.....	381,453,794	138,891,202	174.7
Value added by manufacture (value of products less cost of materials).....	153,467,410	47,882,206	220.5

¹ Minus sign denotes decrease.

FINANCE. Balance on hand, Dec. 31, 1920, \$1,402,021; receipts for the fiscal year 1921, \$12,628,514; expenditures, \$13,258,781; cash balance, Dec. 31, 1921, \$771,754.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Provision for a State board of fisheries, an act to regulate the storage, grading, and marketing of cotton and other non-perishable farm products, and an amendment of laws of 1912 relating to exemptions from jury duty by including female electors in the exempt class.

OFFICERS. Governor, R. A. Cooper; Lieutenant-Governor, Wilson G. Harvey; Secretary of State, W. B. Dove; State Treasurer, S. T. Carter; Comptroller-General, Walter Duncan; Attorney-General, Samuel M. Wolfe.

SOUTH CAROLINA. UNIVERSITY OF. A non-sectarian, co-educational institution at Columbia, S. C.; founded in 1901. The enrollment for the fall of 1921 was 610. There were 40 members in the faculty, including five additions. The productive funds amounted to \$242,855. The library contained 65,000 volumes. Four dormitories were completely overhauled and eight professors' houses built. President, W. S. Currell.

SOUTH DAKOTA. POPULATION. According to the report of the census of 1920, there were 636,547 residents in the State, Jan. 1, 1920, as compared with 583,888 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crops	Year	Acreage	Prod., bu.	Value
Corn.....	1921	3,926,000	125,632,000	\$32,664,000
	1920	3,650,000	109,500,000	45,990,000
Oats.....	1921	2,650,000	58,300,000	11,660,000
	1920	2,219,000	75,446,000	24,897,000
Barley.....	1921	1,019,000	17,323,000	5,024,000
	1920	1,028,000	25,700,000	13,364,000
Wheat.....	1921	2,845,000	25,980,000	22,603,000
	1920	2,930,000	26,920,000	30,958,000
Flaxseed.....	1921	216,000	1,404,000	1,952,000
	1920	220,000	2,200,000	3,630,000
Rye.....	1921	191,000	3,056,000	1,772,000
	1920	205,000	2,768,000	3,017,000
Hay.....	1921	4,470,000	4,158,000	24,091,000
	1920	4,591,000	5,757,000	53,388,000
Potatoes.....	1921	80,000	4,400,000	4,708,000
	1920	75,000	7,950,000	7,712,000

¹ Pounds.

IRRIGATION. The accompanying table issued by the United States Bureau of the Census sum-

marizes irrigation conditions of the State in 1920 Charles S. Whiting, Ellison G. Smith, Frank Anderson and 1910:

	Census of—	
	1920	1910
Number of all farms.....	74,637	77,644
Approximate land area of the state.....	acres. 49,195,520	49,195,520
All land in farms.....	acres. 34,636,491	26,016,892
Improved land in farms.....	acres. 18,199,250	15,827,208
Number of farms irrigated.....	1,198	500
Area irrigated.....	acres. 100,682	63,248
Area enterprises were capable of irrigating.....	acres. 150,914	128,481
Area included in enterprises.....	acres. 188,392	201,628
Per cent irrigated:		
Number of all farms.....	1.6	0.6
Approximate land area of state.....	0.2	0.1
Land in farms.....	0.3	0.2
Improved land in farms.....	0.6	0.4
Excess of area enterprises were capable of irrigating over area irrigated.....	acres. 50,232	65,233
Excess of area included in enterprises over area irrigated.....	acres. 87,700	138,377
Capital invested.....	\$5,465,248	\$3,043,140
Average per acre enterprises were capable of irrigating.....	50.21	23.69
Estimated final cost of existing enterprises.....	5,500,748	3,800,556
Average per acre included in enterprises.....	29.20	18.86
Average cost of operation and maintenance per acre.....	1.26	0.64

MINERAL PRODUCTION. The Homestake mine and mills, at Lead and Deadwood, S. Dak., began the year 1921 with increased activity and in April were working almost at full capacity, according to the United States Geological Survey. From May the operations continued at full capacity throughout the year. In May, 1921, the homestake resumed the payment of dividends, the first since September, 1919. The Trojan mine and mill were in continuous operation throughout the year. The Golden Reward Co. moved the machinery of its cyanidation plant from Deadwood to Terry. Considerable development work was done at other properties during the year. The production of gold in South Dakota for 1921 was \$6,464,000 as compared with \$4,676,470 in 1920, and the production of silver increased from 90,795 ounces to 111,000 ounces. No lead or copper was produced in the State in 1921.

TRANSPORTATION. Total railway mileage was given by the State authorities in 1921 at 4213.88.

FINANCE. Total receipts for year ending June 30, 1921, \$18,587,543; total disbursements, \$13,972,471; cash balance, all funds, July 1, 1921, \$4,615,071. The State bonded indebtedness, Dec. 1, 1921, was \$53,270,000.

LEGISLATION. The legislature convened January 4, and organized with C. S. Amsden, president pro-tem. of the senate; A. B. Blake, secretary; C. O. Berdahl, speaker, and Wright Tarbell, chief clerk, of the house. Four hundred twenty-five laws and resolutions were enacted, but there was little legislation of outstanding importance. Provision was made for loaning money for urban home-building under the rural credits board, the primary law was simplified by amendment, and initiated bills submitted for the establishment of a state bank and for the development of hydro-electric power.

OFFICERS. Governor, W. H. McMaster; Lieutenant-Governor, Carl Gunderson; Secretary of State, C. A. Burkhardt; Auditor, Jay Reeves; Treasurer, W. S. O'Brien; attorney-general, Byron S. Payne; Superintendent of Public Institution, Fred L. Shaw.

JUDICIARY. Supreme Court; Presiding Judge, Samuel C. Polley; Judges: Howard Gates,

SOUTH DAKOTA, STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS. A co-educational State institution at Brookings, S. D.; founded in 1882. The enrollment for the fall of 1921 was, 654 men and 286 women. The enrollment for the summer session was 289. President, Willis E. Johnson.

SOUTH DAKOTA, UNIVERSITY OF. A co-educational State institution at Vermillion, S. D.; founded in 1882. The enrollment for 1921 was as follows: College of Arts and Sciences, 444; College of Engineering, 64; College of Law, 79; College of Medicine, 80; College of Music, 63; University High School, 61; Correspondence, 104; Summer session, 189; total, not including 50 duplicates, 1034. There were 96 members in the faculty. The income was: State appropriations, \$327,400; local collection and endowment, \$45,000; total, \$372,400. The library contained 45,000 volumes. President, Robert L. Slagle.

SOUTHERN CALIFORNIA, UNIVERSITY OF. A Methodist Episcopal co-educational institution for the higher education, at Los Angeles, Calif.; founded in 1879. The enrollment in 1921 was 4861 and the faculty numbered 273. President, G. F. Bovard, D.D.

SOUTHWEST AFRICA. A protectorate (formerly German) administered by the Union of South Africa. See GERMAN SOUTHWEST AFRICA.

SPAIN. A constitutional monarchy in southwestern Europe, occupying the greater part of the Iberian Peninsula, and separated from France by the Pyrenees. Capital, Madrid.

AREA AND POPULATION. The total area is placed at 194,783, of which 190,050 are on the continent, the remainder comprising the Canary and Balearic Islands (q. v.), and the Spanish possessions on the north and west coast of Africa (see MOROCCO, section *Spanish Morocco*); population in 1910, 19,950,817; estimated, Jan. 1, 1920, 20,783,844. The largest cities with their populations, Jan. 1, 1919, were: Madrid, 652,157; Barcelona, 618,766; Valencia, 245,162. The movement of population in 1919 was as follows: Births, 585,352; deaths, 482,030; marriages, 166,716. The total emigration in 1918 was 36,254, of whom 26,377 were males. The chief countries

of destination were: Argentina, Cuba, Brazil, Mexico, and Uruguay. The latest figures for primary education gave 28,108 public schools and 5669 private schools, with 2,604,308 pupils. For secondary education there were 58 middle class schools with 52,498 pupils. There were 11 universities, namely: Barcelona, Madrid, Granada, Murcia, Salamanca, Oviedo, Seville, Santiago, Valencia, Valladolid, and Saragossa, with a total attendance of 23,586 students.

PRODUCTION. By far the most important interest is agriculture, and the soil is divided among numerous proprietors, subdivision having proceeded rapidly of late years. The following table shows the acreage and production of the principal crops for 1920:

	Area 1920, acres	Yield 1920, cwt.
Wheat.....	10,374,712	75,444,752
Barley.....	4,369,310	39,392,050
Oats.....	1,606,600	10,965,284
Rye.....	1,820,395	14,138,252
Maise.....	1,181,577	14,068,432
Millet.....	4,940	41,796
Mealin.....	107,580	581,760
Rice.....	121,237	5,786,790
Beans.....	489,052	3,670,448
Kidney beans.....	798,435	3,765,424
Peas.....	153,527	844,732
Chick peas.....	567,365	2,798,702
Lentils.....	82,047	505,754
Tares.....	494,185	2,768,692
Vetches.....	164,842	1,148,398

ECONOMIC CONDITIONS. Throughout the year and at its close the business conditions of the country were unsatisfactory. In October the imports were exceeding the exports; the cost of the Moroccan campaign was increasing the financial deficit; strikes were threatening; and prices were rapidly increasing. As to the financial situation, the issue of notes payable in three months, amounting to 1,350,000,000 pesetas was authorized, November 4, bringing these short term notes to a total of 2,706,000,000. This situation was largely due to the cost of the war in Morocco. It appeared inevitable that higher taxes should be imposed. It was estimated that the deficit would exceed 650,000,000 pesetas. As to foreign trade, while exports were remaining stationary, imports were in October showing a considerable increase. For the first nine months of 1921 the imports amounted to 1,010,000,000 pesetas and exports to 567,000,000 pesetas. An increase in the price of foodstuffs was indicated, and the government laid an embargo on foreign wheat to go into effect, November 8. In December the cost of living was still increasing and industrial conditions were disturbed owing to wage disputes in some of the most important industries. There were strikes in the mining and metal industries, on the railways, and in paper mills.

COMMERCE. The total trade for 1919 was as follows: Imports, 650,168,971 pesetas; exports, 987,224,798 pesetas; for 1920, Imports, 1,050,345,014 pesetas; exports, 756,769,286 pesetas.

FINANCE. The budget estimates for the fiscal year 1921-22 are as follows: Revenue 1,976,663,000 pesetas; expenditure 2,550,794,000 pesetas.

The total sum of taxes collected for the fiscal year 1920-21 was 1,862,631,758 pesetas, as compared with 1,618,912,672 pesetas for the corresponding period of the previous fiscal year, an increase of 243,708,086 pesetas.

On Jan. 1, 1921, the public debt amounted to 11,992,949,525 pesetas as compared with 12,026,280,212 pesetas a year previous, 9,421,586,036 pesetas on the same date of 1919, and 9,399,440,855 pesetas on Jan. 1, 1913. That of Jan. 1, 1921, was made up of an external debt of 910,761,400 pesetas and an internal debt of 11,082,188,125 pesetas. The general aspect of government finance shows no signs of amelioration, and higher taxation appeared inevitable. With the military expedition in Morocco costing over 40,000,000 pesetas monthly, the deficit for the year was expected to exceed 650,000,000 pesetas. The deficit of the fiscal year, ending March 31, 1921, amounted to over 800,000,000 pesetas, of which 250,000,000 pesetas were spent in the support of railroads, purchase of wheat by the government, and control and distribution of such products as olive oil and bread. The budget for the fiscal year ending March 31, 1922, as appears from the above estimates carried a deficit item of 574,131,000 pesetas. The revenue estimates showed an increase of 117,920,000 pesetas over the previous year, while the expenditure showed an increase of 147,060,000 pesetas.

SHIPPING. Ocean-borne traffic in and out of Spanish ports had not regained its prewar level, as regards either number of vessels or tons of cargo. During 1913, 12,000 vessels entered Spanish ports with 5,800,000 metric tons of cargo, and 17,500 vessels cleared with 14,900,000 tons. During 1920, total entrances numbered 10,000, with 3,700,000 tons of cargo, while clearances numbered 13,000 with 8,700,000 tons. Combining cargo movements inward and outward, it appeared that 1920 shipping in Spanish ports was only 60 per cent of the amount handled in 1913.

RAILWAYS. The total mileage of the Spanish railways in 1920 was 9430 miles, most of which had a gauge of 5 ft. 5½ in. The lines were operated under concessions similar to those in force on the French railways and these were due to expire within some 25 years. The four principal lines in Spain were: the Northern; the Madrid, Zaragoza & Alicante; the Madrid, Caeres & Portugal, and the Andalusian, all of which serve individual territories with practically no competition.

The statistics for 1920 showed an operating ratio of 77.5 per cent, but on the other hand there was but poor physical condition of the track and equipment. There were nominally some 200 more locomotives in the year 1920, as compared with the year 1913 (2100 in 1913 and 2300 in 1920) but the condition of these locomotives was such as to render the number fit for service no more than in the earlier year.

STATISTICS OF SPANISH RAILWAYS

Five ft. 6 in. (1.674 metre) gauge railway:			
Single track.....	miles	6,773	
Double track.....	miles	243	
Locomotives.....		2,132	
Passenger cars.....		4,803	
Freight cars.....		40,304	
Metre (39.37 inch) gauge railway:			
Single track.....	miles	2,119	
Double track.....	miles	16	
Locomotives.....		626	
Passenger cars.....		1,250	
Freight cars.....		10,230	

During the year there was brought before the Spanish congress a bill for the reorganization of

the railways of the kingdom, but it revoked so much protest that it was abandoned. On October 26 a new bill was prepared, which sought to make the state a partner in railway enterprise by having it advance to all the properties enough financial aid to put them on a sound basis. The bill provided for the management of the railways, by a council of 15 members—6 representing the government, 6 the companies, and 3 the Spanish business interests. It was proposed that this council should fix rates as to provide adequate returns, and net profits would be divided by the stockholders and the government. Perpetual concessions to private companies were to be reduced to a period of 99 years, and the right of the government to take over the roads at the termination of the concession was recognized. Under certain conditions, concessions might revert to the state prior to the termination of the stipulated period, and restrictions as to disposal of railway properties held by individuals were embodied. Points of timely interest were the provisions for regrouping and reclassification of railways with a view to better commercial service and increased strategic value; definite measures for retirement of laborers on pension; and the council's right of establishing or revising the tariff. In the latter case the council should be animated by two considerations: First, the best interests of the company in question; second, the general interest, with a special view to the effect of the new tariff on through rates having to do with two or more lines.

DEFENSE. In 1920 the peace establishment was placed at 216,649. Outside the Spanish peninsula are commands on the coast of Morocco and on the Canary and the Balearic Islands. The total forces in Morocco in 1920 were 60,735, all under the Spanish Commissioner General, in supreme military command of the Spanish Zone. These troops were largely reinforced in 1921 on account of the war in Morocco (q. v.). See NAVAL PROGRESS.

GOVERNMENT. Executive power is vested in a king who acts through a responsible ministry; and legislative power, in the cortes or parliament, consisting of a senate and congress which meet each year. The senate comprises three classes of members: namely, those holding office by their own right; those nominated by the Crown; and those elected by various corporations and the localities, and by the largest taxpayers. The first two classes must not exceed 180, and the third class is fixed at that number. The deputies in the congress number 417, elected on the basis of compulsory voting of all males over the age of 25. The distribution of the parties in the cortes at the beginning of 1921 was as follows: Senate, Conservatives, 90; Liberals, 58; Independents, 18; Regionalists, 6; Catholics and Jaimistas, 5; Reformists, 2; Republicans, 1. Congress, Conservatives, 223; Liberals, 111; Regionalists, 40; Republicans, 16; Catholics and Jaimistas, 8; Independents, 11; Reformists, 8; Socialists, 3. The king in 1921 was Alfonso XIII, born, May 17, 1886. The ministry, constituted, March 13, 1921, was as follows: President of the Council, Manuel Allendesalazar; Minister of Foreign Affairs, Marquis de Lema; Minister of Justice and Worship, Señor Pinies; War, Viscount Eza; Marine, Fernandez Prida; Finance, Manuel Arguelles; The Interior, Count de Bugallal; Public Instruc-

tion, Señor Asparicio; Public Works, Señor Lacierva; Labor, Count Lizarraga.

HISTORY

THE WAR IN MOROCCO. A summary of the chief events of the war will be found in the article Morocco. In September the government established a censorship over the newspapers, forbidding the publication of any other news in regard to the Moroccan campaign than what was contained in the official dispatches. The result of this was to deprive the public of any information in regard to what was actually going on. The censorship applied to foreign correspondence as well as to the Spanish press. The newspapers all complained of these conditions which they characterized as intolerable, but the government remained firm. The Moroccan situation was the main subject of public attention and was sure to be the chief topic of discussion at the opening of the Spanish Parliament, October 15. The ministry in September was occupied with the financial situation, especially in its relation to the Moroccan campaign, and the minister of finance, Señor Cambo in setting forth the situation suggested a number of reforms that would increase the revenue. Another measure under consideration at this time was a plan for the nationalization of the military industries in order to meet the needs of the Spanish army in Morocco at the earliest possible moment. Many large industrial establishments in the various branches of industry placed their factories at the disposal of the minister of war, offering to provide if necessary for an increased output.

CATALONIA. The independent movement in Catalonia aiming at home rule continued to gain strength after the war. Separation was narrowly averted in 1918 after threatening revolts among the people, and in 1919 the Catalans hoped to secure recognition from the League of Nations but were disappointed. The programme of Catalonia, which was adopted in 1916, consisted of a demand for self-government with a parliament elected by and responsible to the Catalan people and an executive power responsible to the parliament; an independent judiciary; official use of the Catalan language; a federative union with Spain which should have charge of foreign relations, the army and navy, etc. The Catalan movement encouraged similar movements in other regions tending toward a federation of the divisions of Spain under a central government with limited powers.

NEW MINISTRY. The prime minister, Señor Dato, was assassinated, March 8. An attempt to form a cabinet under Antonio Maura failed, and a coalition ministry was formed along with the Conservatives under Señor Allende-Salazar as prime minister. It was constituted as follows: Prime minister, Allende-Salazar; foreign affairs, Lema; interior, Bugallal; war, Eza; marine, Prida; finance, Arguelles; public works, Lacierval; public instruction, Aparicio; labor, Elisarraga; justice, Pinies.

COMMERCE RELATIONS. A debate on the rupture of the *modus vivendi* with France occasioned a debate in the Chamber in November, in the course of which the government spokesman declared that the chief cause of the discontent of France was the general increase in the tariffs since the end of November, 1920. He said that

Spanish offers of a new understanding were not accepted by France. Spain had agreed to postpone without any compensation the payment of the debt to her from France of 455,000,000 pesetas. The Finance Minister, M. Cambo, attributed the action of France to a regard for her own interests. He compared the increase of the French tariff to that of the Spanish tariff, saying that the latter was much less, and he insisted upon the necessity of protecting Spanish national industries.

SPANISH LANGUAGE. See PHILOLOGY, MODERN.

SPANISH LITERATURE. The literary activity of Spain for the year has been markedly less voluminous than for several years past. The official figures in the *Bibliografía Española* are: to the end of November, 1265 in 1919, 1371 in 1920, and only 906 this year. But the smaller output, despite the absence of certain outstanding names, seems to be about as interesting as usual.

NECROLOGY. As in several recent years, Spanish letters have paid heavy toll to death, and once more the losses have been more numerous in Spanish America. We lost in May that most brilliant woman writer of the last half of the nineteenth century, Countess Emilia de Pardo Bazán, who in the last years of her life had duplicated the achievement of some of her sisters in earlier centuries by becoming a professor at the University of Madrid.—In September Enrique Menéndez y Pelayo, the distinguished novelist and poet, joined his brother, the late, lamented humanist, Marcelino Menéndez y Pelayo.—Mexico lost one of her chief glories through the death of the Archbishop of Cusareta, Bishop of San Luis de Potosí, Ignacio Montes de Oca, well-known Hellenist, translator of Pindar, and gifted lyric poet.—Honduras suffered greatly in the death of her statesman and diplomat, the lexicographer Alberto Membreño.—Peru also paid heavy toll through her loss of the versatile Javier Prado, former Minister of State, ex-Senator, and at the time of his death Rector of the University of San Marcos and Director of the Peruvian Academy. We of this country share in a very personal sense Peru's loss in this case, since with an enlightened patriotism Javier Prado was for long years a devoted friend and admirer of the United States: a friend who expected great things of us, and who challenged us to them in his book *La Nueva Época y los Destinos Históricos de los Estados Unidos*.

LITERARY CRITICISM of various types is well represented: Homero Seris, *La Colección Cervantina de la Sociedad Hispánica de América: Ediciones de Don Quijote* (appeared too late for inclusion in last year's account, but contains the important discovery of a hitherto unknown edition of 1605 by Cuesta, and probably the second); Miguel Artigas, *Un nuevo poema vor la cuaderna vía*; A. de Santa Cruz, *Crónica del Emperador Carlos V*, vols. 1 and 2 (edited by R. Beltrán y Róspide and A. Blázquez y Delgado Aquilera); M. Menéndez y Pelayo, *Obras completas*, vols. 10 and 11 (ed. by A. Bonilla y San Martín); M. Méndez Bejarano, *Vida y obras de J. M. Blanco y Crespo (Blanco-White)* (awarded a prize by the Spanish Academy); R. Menéndez Pidal, *El Cid en la Historia*; C. Pittollet, *V. Blasco Ibáñez—Sus novelas y la novela de su vida* (Spanish translation by Tulio Moncada); R. Altamira y

Crevea, *Arte y realidad* and *La política de España en América*; E. Gascó Contell, *Blasco Ibáñez y su obra*; Juan de Timoneda, *La oveja perdida* (ed. by A. García Boisa, with introd., notes and glossary); and Gil Vicente, *Auto de la Sibila Casandra conforme a la edición de 1668*, (con prólogo y notas de Álvaro Giráldez).—It is interesting to note that George Borrow's *The Bible in Spain* is being translated into Spanish by Manuel Azafra, and that the third volume has already appeared.—Americans interested in our international relations will probably find much of profit in the following two works: Isidro Fabela, *Los Estados Unidos contra la libertad—Estudios de historia diplomática americana (Cuba, Filipinas, Panamá, Nicaragua, República Dominicana)*; and Luis Araquistain, *El peligro yanqui*.—Lexicographical studies were also of interest: Real Academia Gallega, *Diccionario gallego—castellano*, cuaderno 19; C. Suárez, *Vocabulario cubano* (Suplemento a la 14a ed. del Dic. de la Real Academia); E. C. Guerrero, *Diccionario filológico—Estudio . . . sobre el linqua je venezolano con referencia al de España y al de otros países de la América latina*; G. M. Vergara y Martín, *Materiales para la formación de un vocabulario de pa la bras usadas en Segovia y su tierra y no incluidas en el Dic. de la R. Academia*; and L. Fullana Mira, *Vocabulário ortográfico valenciano—castellano*.

POETRY offered the following among others: Julio J. Casal, *Humildad*; R. Pérez de Ayala, *El sendero andante*; E. Carrière, *Románticas y otros poemas*; César Barja, *Rosas u espinas místicas* (very well received); J. M. Gabriel y Galán (distinguished poet of Extremadura, writing with equal grace in Castilian or in his native dialect), *Obras completas*, vols. 1 and 2; and E. Alberola Serra (the Valencian, author of *Mil y un cantares*), *Mil y un cantares más* (highly praised by the Academy in a memorandum signed by Ricardo León, and published with prologue by F. Rodríguez Marín).—After several years of exile in Spain, and upon his departure for his native Mexico, Ignacio Montes de Oca, Correspondiente of the Spanish Academy, left with the Academy, as a parting gift, a new volume of sonnets, *Sonetos jublares*, which are said to equal in inspiration those of his first volume.

DRAMA seems to have been a little more productive of serious works than was the case a year ago. The Álvarez Quintero brothers maintained their usual high level in quality and quantity: *Ramo de locura*, a lesson on the folly of suicide in unhappy love affairs; *La prisa*, a satire on the hurry of modern life (even in Spain) that prevents access to the deeper joys of life; and their new triumph, *Pasionera*, a study of the sacrifice of a woman's love in the effort to regenerate an unworthy man.—J. López Pinillos (Parmeno) caused much and varied criticism with *Como el humo*, a pessimistic, intensely dramatic study of adultery; his much stronger work, *La tierra*, dealing with the question of the ownership of land, was carried to great success by Matilde Moreno on the stage of the Teatro Español; and his best work for the year, *El caudal de los hijos*, exquisitely performed by María Guerrero and Fernando Díaz de Mendoza, is a lofty conception treating honor as a spiritual inheritance that parents should pass down unsullied to their children.—G. Martínez Sierra's tragicomedia *Don Juan de España* was a great success.—E.

Marquina's *La extraña* is a keen study of expiatory contrition on the part of a woman trying to regain her own self-esteem.—M. Linares Rivas, in *Frente a la vida*, examines the problem of educating the middle classes (especially the girls thereof) to economic efficiency, so that when the father dies they may not have to make a loveless marriage as the only career that offers a livelihood.—R. Martí Orbera's *Entre nieblas* is an interesting play that gives hope of greater things to come.—Others that may be mentioned are: J. M. Acevedo, *La princesita rubia*; F. Acebal, *Los antepasados*; and L. Antón del Olmet, *No es lo mismo and Vida nueva*.

FICTION. José Francés gave us *Sortilegio, El muerto*, and *El mundo se rie* (*La caricatura universal* in 1920.—The edition of the *Obras completas* of several authors advanced by several volumes: E. Gómez Carrillo, vols. 16, 17, 18; Azorín, vols. 22 and 26; A. Palacio Valdés, vols. 8, 9, 10; Fernán Caballero, vols. 12 and 13; L. Antón del Olmet, vols. 1 and 2.—Pío Baroja continued his *Memorias de un hombre de acción* with two volumes: *El escuadrón el Brigante* and *El sabor de la venganza*.—José María Acosta's last novel, *Entre faldas anda el juego*, was a great success, fully equal to his first novel, *Amor loco y amor cuerdo*. As a result, Acosta is hailed as continuing the artistic tradition of Valera, Pereda, and Palacio Valdés.—Other works that may be mentioned are: Alberto Insúa, *Juventina la bella* and *La batalla sentimental*; W. Fernández-Flores, *El espejo irónico*; R. Gómez de la Serna, *El Doctor inversotmil*; A. Hernández Catá, *La voluntad de Dios*; A. Pérez Lugín, *Currito de la Cruz* (2 vols.); R. López de Haro, *Un hombre solo and Batalla de odios*; J. López Pinillos, *Doña Mesalina*; Miguel de Unamuno, *Tres novelas ejemplares y un prólogo*; and M. Linares Rivas, *Mis mejores cuentos* (selections by the author).

ROYAL ACADEMY activities, in the way of reception of new members, were not so great as a year ago. Nevertheless, three members-elect qualified to take possession of their chairs. Julio Cesares, the philologist and critic, succeeded Augusto González Besada. His discourse, *Nuevo concepto del diccionario de la lengua*, pleads for a reworking of the celebrated *Diccionario de ideas afines* (the Spanish equivalent of Roget's *Thesaurus*) by Eduardo Benot.—Manuel Linares Rivas, the dramatist and novelist, succeeded Javier Ugarte, and his discourse was a detailed study of the celebrated and unfortunate Gallegan poet *M. Curros Enríquez*.—Adolfo Bonilla y San Martín, the philosophico-literary historian and critic, succeeded Mariano de Cavia, who died, however, without ever having taken possession of his chair, so that Bonilla y San Martín really succeeded the last occupant of that chair, the poet and archæologist, Juan Menéndez Pidal. The discourse of Bonilla y San Martín was entitled *Las Bacanas, o del origen del teatro*.—The Academy awarded the following prizes: the "Piquer" Prize for 1920, to J. Arzadún for his *Castilla for doña Juana!* and the two pending "Espionosa and Cortina" Prizes to the two dramas *La red.*, by J. López Pinillos, and *El Jayán*, by Concha Espina.

SPIRITUALISTS' ASSOCIATION. NATIONAL. The belief of this association is that "spiritualism is the science, philosophy, and religion of continuous life, based upon the demonstrated fact of communication, by means of mediumship, with

those who live in the spirit world." To expand the movement and organize the numerous local societies, the association was incorporated in 1892. The annual convention for 1921 was held in Detroit, Mich., October 18-22. The association reported to be making rapid progress in gaining influence and strength of subsidiary bodies. It has 24 state associations with about 600,000 members. Each of these subsidiary associations or churches hold regular meetings, attracting large audiences with local ministers or speakers and mediums. Many new organizations came into activity in 1912. There were 500 ministers and about 1200 mediums. The regular attendance is said to be 1,000,000. The National body keeps its president almost constantly visiting and lecturing to the auxiliaries. He also edits *The National Spiritualist*, the official organ of the movement. The main office answers inquiries for information about Spiritualism and solicitations for literature. The sales of books and the demand for their publication has been widespread in the past year.

An advance toward securing a National Temple in Washington was made in 1921 by the payment in full of a prominent building site. During the year a compromise in the action over the bequest of the estate of John L. Jackson of Fort Worth, Texas, was effected by which the National association received \$65,000.

The members of the Board of Trustees are now given a three-year term of office and no changes were made in its membership for 1922. With a substantial increase financially for each branch of its work, high expectations are held for growth during the coming year. The offices of the National Association are: President, George B. Warne, Chicago; Vice-president, Joseph P. Whitwell, St. Paul, Minn.; Secretary, George W. Kates, Washington, D. C.; Treasurer, Cassius L. Stevens, Pittsburg, Pa. The main office of the National Association is at 600 Pennsylvania Ave. S. E., Washington, D. C.

SPITZBERGEN. An archipelago, 500 miles to the north of Norway, including Bear Island. Area, about 25,000 square miles. The principal islands are: Mainland or West Spitzbergen; North East Land; Edge Island; Prince Charles Foreland; and Barents Island. The islands have been much frequented by whalers, seal fishers, and hunters of fur-bearing animals. Rich mineral resources have been discovered, the chief being coal which is found over a wide area and has been worked by British, Norwegian, Swedish, and Russian companies. Other minerals reported are: Copper, zinc, gypsum, asbestos, molybdenum. The Treaty of Versailles placed the archipelago under the sovereignty of Norway. Pursuant to this decision treaties were signed by Norway with the other Powers, Feb. 16 and April 9, 1920. See preceding YEAR BOOK.

SPOFFORD, HARRIET PRESCOTT. Author, died, August 15. She was born at Calais, Maine, April 3, 1835, graduated at the Putnam Free School, Newburyport, Mass., in 1852 and married Richard S. Spofford, a lawyer of Boston in 1865. She wrote many short stories and a long series of novels some of which were widely read. She ranked among the leading women novelists of her time. The list of her writings includes the following: *Sir Rohan's Ghost*; *The Thief in the Night*; *The Marquis of Carabas*; *A Lost Jewel*; *Hester Stanley at St. Mark's*; *Hester Stanley's Friends*;

The Scarlet Poppy; Art Decoration Applied to Furniture; House and Hearth; The Servant Girl Question; Poems; Ballads about Authors; The Amber Gods; Azarian; New England Legends; A Master Spirit; An Inheritance; In Titian's Garden; Four Days of God (1905); The Children of the Valley (1901); The Great Procession (1902); Old Madame; The Maid He Married; Priscilla's Love Story; Old Washington (1906); The Fairy Changeling (1910); The Making of a Fortune (1911).

SPORTS. Articles covering the activities in the various sports during 1921 will be found under such titles as **ATHLETICS, TRACK AND FIELD, BASEBALL, FOOTBALL, RACING, ROWING, TENNIS, YACHTING, etc.**

SPRONCK, MAURICE. French writer and politician, died in December. He first drew attention by a volume on *Literary Artists* dealing with the leading nineteenth-century authors. His work showed a highly analytical spirit, and led to his characterization as a psychological anatomist. He continued in the leading French journals to write important articles on literary criticism, but abandoned this work in a large part for a political career. He was municipal councilor and a deputy in the Chamber, where he was a leading figure in the Nationalist group. In the elections of 1920 or 1921 he was defeated. At the time of his death he was carrying on a chronicle of parliamentary affairs in the French press.

SQUASH. See **RACQUETS.**

STALLINGS, LOUISE. See **MUSIC, Artists, Vocalists.**

STAMM-RODGERS, Madame ESTELLE. See **NECROLOGY.**

STANCHFIELD, JOHN BARRY. Lawyer, died June 25. He was born at Elmira, N. Y., March 13, 1855; graduated at Amherst College in 1876 and at the Harvard Law School in 1878; and was admitted to the bar in the latter year, and practiced at Elmira until 1900. He was a partner of Senator David Bennett Hill at Elmira from 1878 to 1885, and after that a member of the firm of Reynolds, Stanchfield, and Collin. He was in practice in New York City after 1900. He was prominent in Democratic politics, having been Democratic minority leader in the New York assembly from 1895 to 1896 and Democratic candidate for governor in 1900. He was Democratic nominee for United States Senator in 1901 and a delegate to the Democratic National Convention at Baltimore in 1912.

STANDARD TIME. During the year by an official decree of President Obregon, Mexico adopted standard time, employing the 24-hour system of notation. Clocks were to be arrayed with such faces and the hours were to be counted from 0 to 24 beginning at midnight.

STANDARDS, UNITED STATES BUREAU OF. To come.

STATE BANKS. The following statement issued by the Comptroller of the Currency shows the number of reporting banks other than national, their loans, cash in vaults, deposits, and aggregate resources on June 30, 1920 and 1921, and corresponding items for the same dates for national banks and the totals for all banks, together with a comparison of the resources of national banks, and bank other than national, on June 30, 1916 and 1921.

Comparative statement of the number of banks reporting, loans, cash in vault, total deposits, and aggregate resources of all banks in the United States on dates nearest to June 30 for the years 1920 and 1921

STATE, SAVINGS, AND PRIVATE BANKS, AND LOAN AND TRUST COMPANIES

Year	[In thousands of dollars]		Cash in vault and due from Federal reserve banks	All deposits	Aggregate resources
	Number of banks	Loans			
1921.....	22,658	\$16,689,209	\$1,277,422	\$23,516,468	\$29,153,528
1920.....	22,109	17,171,094	1,352,449	24,558,654	29,667,855
Decrease.....		\$ 481,882	\$75,027	\$ 1,042,186	\$ 514,327
Increase.....	549				
Per cent of increase.....	2.48				
Per cent of decrease.....		2.81	5.55	4.24	1.73
Per cent of "Cash in vault and due from Federal reserve banks" to "all deposits":					
1921.....					5.43
1920.....					5.51

NATIONAL BANKS¹

1921.....	8,154	\$11,125,099	\$1,742,556	\$15,142,331	\$19,638,446
1920.....	8,030	12,406,118	2,177,693	17,155,421	22,196,737
Decrease.....		\$ 1,281,019	\$435,137	\$2,013,090	\$2,558,291
Increase.....	124				
Per cent of increase.....	1.54				
Per cent of decrease.....		10.33	19.98	11.73	11.53
Per cent of "Cash in vault and due from Federal reserve banks" to "all deposits":					
1921.....					11.51
1920.....					12.60

TOTAL NATIONAL, STATE, SAVINGS, AND PRIVATE BANKS, AND LOAN AND TRUST COMPANIES

1921.....	30,812	\$27,814,308	\$3,019,978	\$38,658,799	\$48,791,974
1920.....	30,139	29,577,209	3,530,142	41,714,075	51,864,592
Decrease.....		\$1,762,901	\$510,164	\$3,055,276	\$3,072,616
Increase.....	673				
Per cent of increase.....	2.23				
Per cent of decrease.....		5.96	14.45	7.32	5.92
Per cent of "Cash in vault and due from Federal reserve banks" to "all deposits":					
1921.....					7.51
1920.....					8.46

¹ Includes balances due from Federal reserve banks to State banks and trust companies, members of Federal Reserve System.

² Rediscunts not included with loans or aggregate resources.

³ Includes customer's liability under letters of credit.

Comparative statement of growth in resources of national and State banking institutions for 5-year period
 [In thousands of dollars]

Resources national banks:	
June 30, 1921.....	\$19,638,446
June 30, 1916.....	13,926,868
Increase (41.01 per cent).....	\$ 5,711,578
Resources State banking institutions:	
June 30, 1921.....	\$29,153,528
June 30, 1916.....	18,344,370
Increase (58.92 per cent).....	\$10,809,158

STATISTICAL ASSOCIATION, AMERICAN.

One of the oldest scientific associations in America, having been organized in Boston in 1839. Members of the Association have served nearly every kind of public bureau interested in the collection and analysis of statistical data, and have directed the work of the Federal censuses for the last 50 years. At the present time the Association has a joint advisory committee on the census—three members from the Statistical Association and three from the Economic Association—appointed three years ago at the request of the Director of the Census for the purpose of advising him during the preparation and publication of the 1920 census.

In recent years the Association has become active in the broader field of statistics, such as statistics of industry, and the internal statistics of corporations. Under the auspices of its Committee on Business Research the Association holds occasional dinners, featuring authoritative speakers and giving opportunity for general discussion. Three such meetings were held in New York City during 1921.

The Association held its 83rd annual meeting at Pittsburgh, Pa., December 27-19. The papers and discussion centred around the following topics: Agricultural statistics; population and vital statistics; business research; business forecasting; the national income; and statistics in the service of economics. Of the seven sessions at the annual meeting two were held in common with the American Economic Association. Other associations meeting in Pittsburgh at the same time no doubt for reasons of mutual benefit were: The American Political Science Association; The American Sociological Society; The American Association of University Instructors in Accounting; The American Farm Economics Association; The American Association of University Professors; and The American Association for Labor Legislation.

For thirty years the Association has issued regular publications and complains of having more good papers available than it can afford to print. With the March, 1922, issue the name of the quarterly changes from the *American Statistical Association* to *Journal of the American Statistical Association*. The editor is William F. Ogburn. Officers of the Association for 1922 are: President, William S. Rossiter; Vice-presidents, Louis I. Dublin, Edwin W. Kemmerer, Malcolm C. Rorty; Counsellors, Carrol W. Doten, Wesley C. Mitchell, Walter F. Willcox; Secretary-Treasurer, Robert E. Chaddock (Kent Hall, Columbia University, New York City).

STEAM ENGINES. Notwithstanding the conspicuous development of the steam turbine and water power taking place in 1921, the steam engine was a large and important factor in the

generation of power in the United States. This was shown conspicuously in the Census of the Superpower Survey report of the U. S. Geological Survey where over nine million horsepower capacity of the various industrial enterprises in the superpower zone, exclusive of steam and electric railways and central lighting station loads were analyzed. It was found that of this total two-thirds was privately generated and one-third was purchased. Excluding the central stations from consideration 68 per cent were steam engines, 19 per cent steam turbines, 8.5 per cent water wheels, and 4.5 per cent internal combustion engines.

A large engine-driven generating unit was installed during the year in the plant of the Corn Products Co. in Kansas City. There was a horizontal twin tandem-compound drop-valve engine with two high-pressure cylinders 27 x 54 inches and two low-pressure cylinders 50 x 54 inches driving a 2500-kw. alternating current generator. A certain number of steam engines went into the coal fields to operate large hoists which were equipped with cylindro-conical drums for rapid hoisting. The unaflo engine continued in favor during the year and some 40,000 horsepower of such engines were said to have been sold during the year. It found increased application to municipal and other power plants where there was wide fluctuation of the load and also in connection with heating loads when it could be run condensing in the warmer seasons. The unaflo engine was also being employed in steel mills on account of its sustained economy over a wide range of load and especially to work with a heavy overload. In fact during the year there were installed two 5000 horsepower duplex unaflo engines to drive plate mills. See **BOILERS; STEAM TURBINES.**

STEAM TURBINES. During 1921 there was no increase in the size of steam turbines manufactured or designed, and the former record units with 60,000 kw., three cylinder compound sets of the Westinghouse Co., and the 45,000 kw. single rotor turbine of the General Electric Co. were not surpassed for capacity during the year, though a second unit of the latter type and size was placed in commission at the Connors Creek Station. It seemed to be good practice during the year to install units of 30,000 kw. capacity rather than larger machines, and they were favored on the score of greater flexibility as regards the load at the station and also for the economy of manufacture as considerable numbers having been built it was possible to standardize their design, construction, and operation. In fact during the year the aim of designer and manufacturer was to introduce changes principally with the object of increasing reliability and efficiency of operation. There was involved the use of more and better steel and a more rigid construction in order to

eliminate as much as possible the effects of axial vibration and also the troubles resulting from variation in steam temperatures and volume due to changes in load. In view of the fact that some of the machines built during the war are showing the effects of poor workmanship, more care was being manifested in actual construction, especially in securing better material, while more care also was being used in the actual operation so as to reduce accidents.

The more important new designs of the year included a large turbine with high and low pressure elements in independent casings. The two rotors were supported by individual bearings with thrust bearings to maintain proper location relative to the stationary parts, and they were connected by a flexible coupling. This design was said to be suitable for units up to 30,000 kw. capacity. At the Ford plant at River Rouge near Detroit, a new multi-stage impulse turbine was installed. This was of 3000 kw. capacity and of 40 stages, and acted to drive the blast furnace blowers at the steel works. These machines show high economy but cost more to build and install than the standard types, so they were considered available only where there was a high load factor and also a high fuel test. See STEAM ENGINES; BOILERS; POWER.

STEAMBOAT INSPECTION SERVICE, UNITED STATES. See SAFETY AT SEA.

STEEL. See CHEMISTRY, INDUSTRIAL.

STEIN, Leo. Austrian librettist, died, in Vienna, July 29. He was born in Lemberg, March 25, 1862, and began life as a lawyer. The extraordinary success of Weinberger's *Lachende Erben* (Vienna, 1892), for which Stein had written the libretto, induced him to devote himself entirely to writing libretti for various Viennese composers of light opera. His greatest successes are the books to Lehár's *Merry Widow* (1905) and *Count of Luxemburg* (1909).

STEPHEN, GEORGE (LORD MOUNT STEPHEN). Pioneer in railway building in Canada died at Hatfield, England, November 29. He was born in Banffshire, Scotland, June 5, 1829, the son of a carpenter, and went to Canada in 1850 where he entered the store of his uncle, a cloth merchant in Montreal. He was successful in business and with his savings purchased shares in the Bank of Montreal, of which afterwards he became president. While still young he threw himself into the work of railway development in the west and in association with Donald Smith, afterwards Lord Strathcona, and the late J. J. Hill, acquired the possession of the St. Paul and Pacific railroad, which was carried through from St. Paul to Winnipeg. This prepared the way for the building of the Canadian Pacific. Stephen then applied himself to the Canadian Pacific project and in recognition of his success he was made president of the road. He acquired a large fortune, the greater part of which he distributed among his relatives, when he retired from the railroad work and went to England after 1888. A baronetcy was conferred upon him in 1886, and in 1891 he was raised to the peerage.

STEPHENS, DAVID STUBERT. University president, died, September 1. He was born at Springfield, Ohio, May 12, 1847; and studied at the University of Edinburgh, Scotland, and at Harvard University. He served in the Ohio infantry during the Civil War. In 1880 he was ordained to the

Methodist ministry. He taught logic and philosophy at Adrian College in 1874, and was the editor of the *Methodist Recorder* at Pittsburg, Pa., from 1888 to 1896. After that he was chancellor of Kansas City University. He was a leader in the movement for the union of the churches, and he wrote a number of pamphlets, including *Wesley and The Episcopacy* (1892).

STEVENS INSTITUTE OF TECHNOLOGY. A non-sectarian institution for the technical education of men at Castle Point, Hoboken, N. J.; founded in 1870. The enrollment for the fall of 1921 was 802. There were 57 members in the faculty. The endowment amounted to \$1,570,000 and the income to \$306,000. The library contained 15,500 volumes.

The total amount subscribed to the Graduates' Memorial Fund, inclusive of the \$40,000 for the endowment of four scholarships, in memory of the men of Stevens who died in the service during the World War, was about \$200,000. The larger of the two barracks buildings purchased from the United States government was occupied by the Department of Electrical Engineering. The laboratory space in the main building vacated by this department was assigned to the Department of Physics, thereby more than doubling the floor space for the physics laboratory work. President, Alexander C. Humphreys, M.E., E.D., ScD., LL.D.

STEVENSON, SARA YORKE (MRS. CORNELIUS STEVENSON). Archaeologist and writer, died at Philadelphia, Pa., November 14. She was the first woman lecturer admitted to the staff of Harvard University and was the recipient of many other honors for her work in archaeology and other fields. She was born in Paris, France, Feb. 19, 1847, educated there until 1862 and lived for a time in Mexico. From 1889 to 1903 she was president of the Pennsylvania branch of the Archaeological Institute, assistant curator of the Pennsylvania Museum after 1908, and secretary of the American Exploration Society in 1897. She was in the department of archaeology of the University of Pennsylvania after 1894 and went to Rome in 1897 on a special mission for the department. In 1898 she was engaged in Europe in work for the American Exploration Society. She wrote *Maximilian in Mexico*, and many articles and reports on Egyptology and other archaeological subjects, and edited the *Public Ledger* after 1908.

STODDART, JOSEPH M. See NECROLOGY.

STONE, WINTHROP ELLSWORTH. President of Purdue University, died at Mt. Eon, Alberta, July 16. He was born at Chesterfield, N. H., June 12, 1862; graduated at the Massachusetts Agricultural College in 1882; and studied in Germany. He was assistant chemist at the Massachusetts Experiment Station from 1884 to 1886; chemist at the Tennessee Experiment Station from 1888 to 1889; and professor of chemistry at Purdue University from 1889 to 1900, after which he was president. He was an excellent college executive and well known for his numerous researches in carbohydrates and other departments of chemistry. He was an active member of Alpine clubs of Canada and the United States. He and his wife lost their lives in mountain climbing, being overtaken by a snowstorm.

STOREY, JOHN. See NECROLOGY.

STORY, DOUGLAS. British author, died July 10. He was born at Edinburgh, Scotland, Dec. 31, 1872, and educated at the University of Edinburgh. During the South African war he was war correspondent of the *Daily Mail* and during the Russo-Japanese war, 1904-05, war correspondent with the Russians for the *Daily Express*. After that he was successively special correspondent for the *New York Herald* in Canada, the *New York Tribune* in Egypt, the Far East, Russia, and South Africa, and special correspondent for various syndicated newspapers and editor of papers in London, New York, South Africa, and the Far East. He was Shipping Controller of the Bureau of Information in the government of Bengal. He wrote *Ten Miles from Anywhere* (1895); *Adrift of the Day* (1902); *The Campaign with Kuropatkin* (1904); *Tomorrow in the East* (1907). *The Campaign with Kuropatkin* gives a full account of Kuropatkin's connection with the Russo-Japanese war.

STOVER, MARTIN LUTHER. See NECROLOGY.

STOWELL, CALVIN LLEWELLYN. Financier, died in 1921. He was born at Ansonia, Pa., August 28, 1854; was privately educated; and went into the banking business at Buffalo, N. Y., but removed to Rochester, N. Y., in 1875, where he rose to the position of director or president of many important corporations of banking, navigation, fire insurance, etc. He wrote extensively for the periodical press and published the following volumes: *Christian Knighthood*; *Stories of Abraham Lincoln*; *Constantine the Great*; *Trips to the West Indies*; *Flotsam and Jetsam*; *Idiosyncrasies of Great Men*; etc.

STRAIT SETTLEMENTS. A British crown colony in Malaysia, comprising, Singapore, Penang, and Malacca. Total population, estimated in 1919, 846,083, of whom 555,298 were males. The area and population of each island were as follows: Singapore, 217 square miles, with a population of 387,336; Penang (including Province Wellesley), 280 square miles, with a population of 153,008. Under the administration of the Strait Settlements are: The Cocos or Keeling Islands; Christmas Island; and the colony of Labuan. The chief city and one of the most important ports of the east is Singapore, which contains the greater part of the population of the island of Singapore. The predominant element is the Chinese who make up the bulk of the population. Attendance at the schools maintained or aided by the government in 1918 was 26,534. The chief interest is commerce. No later figures for trade were available than those given in the preceding YEAR BOOK. In 1919 the tonnage of merchant vessels, entered and cleared, exclusive of native craft, was 18,885,183, of which, British was 10,081,120; Japanese, 4,102,800; and Dutch, 2,348,999. The tonnage of native and small craft, entered and cleared, was 2,566,091. Governor at the beginning of 1921, Sir Laurence N. Guillemard.

STRANG, WILLIAM. British painter, died, April 13. He was born at Dumbarton, Feb. 13, 1859, and educated there and at University College, London. After 1875 he studied and worked in London and he won the silver medal for etching at the Paris International Exhibition in 1889; also the first-class gold medal for painting at the International Exhibition at Dresden, 1897. He published *The Earth Fiend*; *Death and*

the Plowman's Wife, and etchings illustrating Kipling's works and Don Quixote.

STRAUSS, RICHARD. See MUSIC, *Artists Instrumentalists, Opera*.

STREET CLEANING. See GARBAGE.

STREET RAILWAYS. See MUNICIPAL GOVERNMENT.

STRIKES AND LOCKOUTS. Official data for strikes and lockouts in the United States during the calendar year 1920 were not complete in time for publication in the preceding YEAR BOOK, and are therefore presented here as compiled by the Department of Labor.

	1916	1917	1918	1919	1920
Strikes.....	3,681	4,324	3,248	3,444	3,109
Average duration, days.....	22	18	17	34	38
Lockouts.....	108	126	105	125	58
Average duration, days.....	64	56	19	38	69

The number of strikes in 1920 was less than in any of the four preceding years. This reduction was due to a lessening of strike activity during the last quarter of the year. During the first six months of the year more strikes occurred than during the first six months of 1918 or 1919, and more than twice as many occurred in the first half of 1920 as occurred in the last. This seems to have been due to the slowing down of the mills during the summer, followed by the shutdowns in the fall and a realization that a strike might result in no benefit to the laboring men, but, on the other hand, might probably be exactly what the employers desired.

There were few distinctly large strikes during the year 1920 as compared with the year 1919, when over 1,000,000 men were involved in three strikes alone. There were but few cases where violence was resorted to sufficiently to attract more than local attention. Aside from the series of so-called outlaw strikes of railroad switchmen and yardmen, involving in all some 500,000 men, and reappearing intermittently through a period of five months, the largest number of persons involved in any one strike was 100,000. This compares with 60,000 in 1918, 40,000 in 1917, 60,000 in 1918, and 435,000 in 1919.

The strike involving the largest number of persons was that of anthracite miners in September. Other large strikes were those of 65,000 clothing workers in New York City in December, 60,000 miners in Illinois in July, 50,000 sugar workers in Porto Rico in February, 30,000 timber workers in the Northwest and 25,000 miners in Indiana, both in June. Several large strikes occurred among the miners; 3000 struck in the eastern part of Ohio in April and 5000 in the southern part in September, 11,000 in Iowa in March, 6000 in Kentucky in September, 28,000 in Alabama in September, and 25,000 in Missouri in the summer. In the building trades there were several large strikes: 4000 carpenters in Chicago, 2500 in New York City in July and the same number in Cincinnati in March, 10,000 in Philadelphia and vicinity in May, 4000 in Pittsburgh, 13,000 painters in New York City in September, and 2500 building laborers in Rochester, N. Y., in April, with general building trades strikes in South Bend, Troy, Syracuse, Dallas, Detroit, and St. Paul. At various points along the Atlantic coast 20,000 longshoremen struck in March, 4000 in Philadelphia in May,

and 8000 in Porto Rico in April, while 4500 stevedores struck in California in September.

In the textile industries 20,000 mill operatives struck in New Bedford and Fall River in March, 5000 knit goods workers in New York City in August, 2500 silk workers in Paterson in the summer, and 3000 in Jersey City in December. A few street railway strikes occurred: 8000 men in Brooklyn in August, 1100 in Atlanta in March, 3000 in Chicago and 3000 in New Orleans in July. Other strikes were those of 15,000 brass workers in Waterbury, Conn., in July, 6000 municipal employees in Chicago in the spring, 3000 express clerks at the railroad stations in Chicago in March, 3000 employees at the Baltimore Dry Docks in February, 5000 silver miners in Montana in April, 5000 sugar planters in Hawaii in the spring, 6000 cigar makers at Tampa in April, 8000 machinists in Cincinnati in May, 5000 iron and steel workers in Reading, Pa., in July, and 13,000 barbers and 10,000 fur workers in New York City in May.

The largest number of disputes occurred in the leading manufacturing States—New York, Massachusetts, Illinois, Pennsylvania, and Ohio—more than one-half the strikes being in these States. The largest number of strikes, as usual, was in New York City, 312, followed by Chicago, with 125; Philadelphia, with 57; and Boston, with 51.

In 1917 the number of unauthorized strikes of which the bureau has information was 72, and in 1918, 58. In 1919 the number was 125, involving 1,053,256 strikers, and in 1920 the number was 251, involving 850,837.

Chicago came second with 41; then Philadelphia, having 38; Boston, 29; Rochester, 22; and seven cities—Detroit, St. Louis, Baltimore, Cleveland, San Francisco, Seattle, New Orleans—with from 10 to 16 disturbances apiece.

In a classification of strikes and lockouts by industries the building trades lead with 454; other industries with high figures are: Printing and publishing, 300; metal trades, 164; clothing, 113; textiles, 73; bakers, 67; miners, 39.

Of the 561 strikes and lockouts ending during the first half of the year the outcome in 175 instances was in favor of the employers, in 175 it was in favor of the employees, in 118 it was a compromise, in 34 cases there was a return to work pending arbitration, and in 79 cases no report was made.

While there are no figures showing the total number of persons involved in the 1621 strikes and lockouts the figures for the few strikes involving large numbers of workers are: 140,000 marine workers, affecting 3690 ships and extending from Portland, Me., to Seattle, Wash.; 40,000 waist makers in 2100 New York City shops; 30,000 workers in the Chicago building trades strike; 27,500 workers in the building trades strike of Cleveland; 12,000 paper makers in the United States; 10,000 building trades workers in San Francisco, 10,000 building trades workers in Boston; 10,000 children's dressmakers in New York City; 10,000 expressmen, teamsters, etc., in New York City; 9353 coal miners, collectively, involved in three Pennsylvania strikes; 9000 textile workers in Charlotte, N. C., and vicinity.

RESULTS OF STRIKES AND LOCKOUTS ENDING IN EACH YEAR, 1916 TO 1920

Result	1916	Strikes ending in—				Lockouts ending in—			
		1917	1918	1919	1920	1917	1918	1919	1920
In favor of employers.....	727	382	459	661	633	21	13	6	19
In favor of employees.....	733	614	612	565	360	16	17	15	16
Compromised.....	766	699	674	785	429	11	21	17	11
Employees returned pending arbitration.....	70	131	199	45	59	3	6	5	3
Not reported.....	99	190	190	36	197	2	1	21	21
Total.....	2,395	2,016	2,134	2,092	1,678	53	58	64	70

Some of the strikes especially attracting public attention were those in the transportation and coal industries. The Alabama coal strike which had been officially called in September, 1920, was finally submitted to Governor Kilby for settlement. Both sides agreed, in March, to abide by the decision to be made by the Governor on the basis of the report of a commission of investigation. The Governor found that the miners had no grievances as to living conditions, hours of work, or wages and recommended: (a) that the operators, as a means to promote peace and harmony, reemploy the strikers as fast as places could be found for them without displacing the men who were then at work; (b) that the organization of the United Mine Workers of America support the unemployed until they could find employment. For the disturbances in the coal fields of West Virginia, see UNITED STATES.

STRIKES AND LOCKOUTS IN 1921. Returns for the last six months are not yet available. Preliminary figures for the first six months as compiled by the Department of Labor show 1584 strikes and 37 lockouts as compared with 1770 strikes and 26 lockouts for the same period in 1920. During these months New York City was the greatest storm centre, with 82 disturbances;

Others that involved large numbers of workers are the strikes of 4500 clothing workers in Philadelphia, 4000 dock carpenters in New York City, 3300 shoe workers in Manchester and Nashua, N. H., 4000 silk workers in New Jersey, 2300 miners in Washington, 3000 tailors in and near New York City, 2200 tapestry workers in Connecticut, 2000 leather workers in Peabody, 1500 employees of the Atlanta, Birmingham & Atlantic Railroad, 1300 packing-house workers in Chicago, and 1500 tobacco workers in Porto Rico.

The total days lost in strikes and lockouts from January through June for the 403 reporting, was 21,257. The average duration of these was about 47 days. The average duration of strikes lasting less than 90 days was 22 days.

On June 1 the long labor struggle which since December 8 had paralyzed the clothing industry in New York came to an end. The strike was estimated to have caused a loss of \$100,000,000 in production and \$30,000,000 in wages. The cause of the trouble was the refusal of certain manufactureres to abide by the system of joint government in force in the industry. On Dec. 2, 1920, the manufacturers announced that they would put into effect individual bargaining, wage-reductions, and piece work, and would insist upon

the unlimited right to discharge employees. The two main issues were recognition of the union and joint industrial government. During the course of the trouble the Amalgamated Clothing Workers were accused of excessive radicalism and bolshevism. Numerous injunction suits were filed by manufacturers. Finally a settlement was reached upon the basis of the agreement drawn up last November by Sidney Hillman, president of the Amalgamated. The wage-reduction amounted to 15 per cent.

The Cleveland building-trades controversy was ended in June, when both parties accepted the award of arbitrators representing the public, which amounted to a wage-cut of 17 per cent. The strike involving 140,000 marine workers which began May 1 ended June 13 with a 15 per cent wage-reduction.

GREAT BRITAIN. Coal Miners' Strike. It is estimated by the *Monthly Labor Review* that in the entire history of labor disputes probably no strike has had more far-reaching or more disastrous effects than the recent coal strike, lasting from April 1, 1921, to June 27, which crippled transportation, reduced foreign trade, and virtually paralyzed the industrial life of the nation. The immediate cause of this stoppage of coal production was the announcement of the Government's decision that decontrol of the mining industry would become effective March 31, 1921, instead of on August 31, 1921, as originally provided under the law.

Before the war the miners' wages were admittedly too low, but under Government management substantial increases had been secured through the Sankey award of 1919 and the agreement of November, 1920, which brought wages in the mining industry up 163 per cent above prewar wages. Prior to 1914 miners' wages had been greater in some districts than in others, owing to differences in the operating conditions of the various mines. To average up these differences and thereby obtain the largest possible production during the war all the earnings of the industry had been pooled, and the miners were paid on a uniform scale throughout the country, the prosperous districts thus making up the deficits of the poorer ones. Decontrol meant a return to the unsatisfactory system of district wage scales.

Every effort was made to avert an actual stoppage of work. The miners referred the whole matter back to the district organizations to see if they were willing to temporarily abandon the policy of the national wages board and national profits pool and allow their representatives to proceed with negotiations on the district basis. Returns showed an overwhelming majority opposed to such a procedure.

On March 30 the representatives of both the miners and the owners admitted their inability to reach an agreement. Meantime each side had submitted a statement of its position to the Government. Notices were posted by the owners ending the miners' employment under the old contracts and new offers at the reduced rates were made. Orders directing the miners not to renew their contracts at rates lower than the existing wages went out to every mine and plant regardless of occupation, and on April 1 practically all of the miners, including a large number of engineers and pumpmen, did not report for work.

Following this breakdown in negotiations, the

triple alliance decided to support the miners by a strike on the night of April 15. Other trade-unions, especially the electrical workers, pledged sympathetic strikes. Intensive preparations were made by coöperative societies, relief committees, and the Government to meet the impending crisis. Meanwhile Mr. Hodges, the miners' spokesman, offered a possible solution of the deadlock. But the miners' federation refused to support their leader; whereupon the triple alliance at once called off its general strike. Mr. Hodges sent in his resignation, which was not accepted by the miners. It was reported that the motion to accept his suggested terms was lost by only one vote.

The lack of solidarity in the ranks of the triple alliance was admittedly a blow to the labor movement. The miners felt that they had been "disgracefully deserted"; but while they had given trade-unionists and the people generally the idea that they were combating impossible wage-reductions, and in this they had widespread public sympathy, they refused to discuss wages with the owners. As a result the belief became general that the miners' strike was being conducted for the political rather economic ends, so the triple alliance, which was ready to strike against the reduction of miners' wages, but was not willing to throw the nation into chaos for the miners' political demands, withdrew its support.

Many proposals for settlement were made and rejected before the men finally accepted terms substantially better than those offered in March. While no permanent subsidy has been granted the industry the Government renewed for a temporary period its grant of £10,000,000 (\$48,665,000 par) to assist the poorer districts. The district boards will be assisted in the adjustment of wages by a national board composed of an equal number of representatives of both sides having an independent chairman.

Though the miners were defeated upon the issue of the national wages pool, they obtained a profit-sharing system which, as the *Economist* (London) points out, is wide in its scope and more hopeful in its possible effects than any other yet devised for a great industry. Moreover, their loyalty, self-sacrifice, discipline, and law-abiding quietness "have commanded the sincere respect of all classes in the country."

As has been said the effects of the coal strike were terribly far-reaching. Many industries were forced to shorten their hours of labor and many others were forced to suspend operations altogether. This was especially true in the iron and steel and pottery trades, which depend upon a daily supply of coal. These plants closed in ever-increasing numbers. Conditions became so bad with the workers out of employment that in May 8000 meals a day were furnished children of the pottery employees at Stoke-on-Trent.

The production of pig iron in May, 1921, according to a statement of the National Federation of Iron and Steel Manufacturers, amounted to 13,600 tons as compared with 60,300 in April, 1921, and 739,000 in May, 1920. The production of steel ingots and castings amounted to 5600 tons in May, 1921, as compared with 70,600 in the previous month, and 846,000 a year ago. Great blast furnaces were damped down and some of them have been blown out permanently.

It was reported in Parliament on July 5 that the

cost of the Government measures taken with the coal stoppage, including the subsidy, was £18,-885,000 (\$91,757,858, par).

During the first weeks of the strike railway services were greatly curtailed, but there was a very considerable improvement in this respect during the latter part of the strike, owing to a freer movement of coal and the use of oil for fuel. A semiofficial statement says that the strike caused a deficit averaging £9,500,000 (\$46,231,750, par) monthly on the working railways still under Government control.

Manufacturers were not as a rule as seriously affected as the industries mentioned. Falling markets at the beginning of the strike led to an accumulation of stock. The manufacturers were thus able to get rid of surplus goods, and they managed to keep up the limited demand by working their plants on part time. Ordinarily they had greater stocks of coal on hand, and as their supply diminished they gradually reduced the hours of working time. The workmen in these cases naturally felt the pinch of the strike much more keenly than did the employers.

COTTON TEXTILE STRIKE. Another large strike, though not as severe in its effects, was that in the cotton textile industry, lasting from June 6, 1921, to June 24. According to the final terms a 70 per cent reduction on standard list rates—equal to 4s. 5d. (\$1.07) on the pound (\$4.87)—was agreed to.

As a consequence of the strike practically all the cotton mills were closed, 60,000,000 spindles and 800,000 power looms being idle. Through the excessive unemployment which has existed in the cotton trade for some time and the strike, 500,000 operatives were affected. The owners' position was more favorable, since the closing down of the industry gave them opportunity to dispose of surplus stocks and tided them over difficulties arising from the prolonged coal strike. For additional information, see **LABOR, ARBITRATION AND CONCILIATION; GREAT BRITAIN.**

STRONG, AUGUSTUS HOPKINS. Theologian and college president, died at Pasadena, Calif., November 29. From 1872 to 1912 he was president of the Rochester Theological Seminary and after that president emeritus. He was born, August 3, 1836, graduated at Yale, in 1857 and Rochester Theological Seminary in 1859. He then passed two years in Europe. On his return he was ordained to the Baptist ministry, and held pastorates at Haverhill, Mass., and Cleveland, Ohio. He became president and professor of systematic theology at Rochester Theological Seminary in 1872. In 1892-95 he was president of the American Baptist Missionary Union, and in 1905-10 president of the general convention of Baptists of North America. He wrote *Systematic Theology* (1886); *Philosophy and Religion* (1888); *The Great Poets and their Theology* (1897); *Christ in Creation and Ethical Monism* (1899); *American Poets and their Theology* (1917); *A Tour of the Missions* (1918); besides volumes of miscellany, and collections of lectures.

STYRIA. A crownland of Austria before the fall of the Austro-Hungarian empire, of which after the arrangements following the war the greater part was retained in the new republic of Austria. Area before the war, 8,662 square miles; population, Dec. 31, 1910, 1,441,157. Area and population according to the census of

Jan. 31, 1920, 6317 square miles and 957,509, respectively. According to the census of Dec. 31, 1910, 70.1 per cent spoke German; 29.37, Slovenian. Capital, Graz, with a population, Jan. 31, 1920, of 157,032.

SUBMARINE BOATS. See **BATTLESHIPS AND OTHER WAR VESSELS.**

SUBWAY SYSTEMS. See **RAPID TRANSIT.**

SUDAN, ANGLO-EGYPTIAN. An African territory under British authority, lying between Egypt and Uganda, and extending from the Red sea to the limits of Wadai in Central Africa. Capital, Khartum. Area, including subject territory, about 1,041,400 square miles; population, estimated in 1917 at 3,400,000. The chief towns are: Khartum (23,083); Omdurman (50,429); Khartum North (15,973). The region is the chief source of the world's supply of ivory and gum arabic, and in certain parts Egyptian cotton has been raised with success. Of late years the cattle trade has largely developed. In 1919 the imports were valued at £E4,805,745; and the exports £E2,740,759. Revenue and expenditure according to the budget estimates of 1920 balanced at £E3,500,000. Total length of the railways, about 1500 square miles, including the line from Cairo via Khartum to El Obeid; and the Nile and Red Sea Railway from Port Sudan to the mouth of the Atbara river. Governor-General and Sirdar at the beginning of 1921, Major-General Sir L. O. F. Stack.

SUGAR. The break in prices brought disaster to the sugar industry, with heavy losses and the passage of dividends to most of the leading sugar companies. Raw sugar went down to a low price that has not been reached in many years. The condition of the industry was especially serious in Cuba. The financial stringency and the unsettled conditions of that country which prevented proper cultivation and cleaning of fields made the ultimate size of the crop uncertain, as some of the mills were prevented from grinding. There was some agitation among Cuban growers for a decreased crop another year, by voluntary or governmental action.

In the United States the growing and harvesting season was unusually favorable. In Europe, although early prospects were quite bright for an increased production, dry weather interfered and the increase was reported as less than 10 per cent. The area planted in France was 20 per cent larger than in 1920, but the sugar production was estimated at 20,000 tons less than in 1920. Germany, the largest producer, showed a gain of about 175,000 tons, but Czecho-Slovakia, the second largest producer, showed a falling off of some 55,000 tons. The beet sugar production of Europe has reached only a little over half what it was before the war.

The world sugar crop of 1921-22 was estimated by Willett and Gray at 16,466,000 short tons, compared with the final figures for 1920-21 of 16,565,600 tons, a falling off of nearly 100,000 tons. Of the total crop as estimated, 11,503,500 tons was from cane and 4,962,500 tons from beets. In 1913 the world crop of sugar was about 18,600,000 tons, so that there is a shortage of some 2,000,000 tons compared with the prewar production.

The estimated production of cane sugar in the United States was 1,121,000 tons (including Louisiana and Texas, 241,000; Porto Rico, 395,000; Hawaii, 480,000, and Virgin Islands, 5000), and of

beet sugar, 900,000 tons. Other principal producers of cane sugar were: Cuba, 3,500,000; British West Indies, 145,500; French West Indies, 52,000; San Domingo, 250,000; Mexico, 110,000; Central America, 37,000; South America, 873,000; British India, 2,200,000; Java, 1,626,650; Formosa and Japan, 425,000. Philippine Islands, 276,000; Australia and Fiji Islands, 354,000; Africa, 525,000. The total beet sugar crop of Europe was placed at 4,039,500 tons. Canada showed a small decline.

The sugar consumption in the United States in 1921 amounted to 90 lbs. per capita, an increase of nearly 3 lbs. compared with 1920, and of more than that amount since 1912. It was 16 lbs. greater than in 1918, which year marked the low point of the war period. In France the duty on sugar was raised from 200 to 500 francs a ton, the consumer being required to pay (with the excise tax) a tax of 1000 francs a ton.

SUGAR CANE DISEASES. See BOTANY.

SUMATRA. See DUTCH EAST INDIES.

SUNDAY SCHOOL UNION, AMERICAN. A body organized in 1817 as the Sunday and Adult school Union with the object of establishing and maintaining Sunday schools and of publishing and circulating moral and religious publications. Seven years later the name was changed to the American Sunday School Union. It is a volunteer association composed of members of different denominations aimed chiefly at teaching Christian truths to the young. Its missionaries are sustained by the contributions of individuals, churches, and Sunday schools. For the year to March 1, 1921, statistics as given in the one hundred and fourth Annual Report, 971 schools were organized, 560 reorganized, 3042 schools aided, 181,316 visits made to families, 19,293 sermons and addresses delivered, 7990 persons brought into existing schools 5312 professed conversions, 234 prayer meetings established, 157 Young People's Societies formed, 179 preaching stations opened, 25 churches organized and 18 churches built. The value of books and periodicals sold was \$26,086.38 and of those given away, \$3387.23. The total number of books, booklets, maps, charts and other Sunday school requisites issued has been 164,550. Books given to Christian workers, theological students and others, number 578; distributions for use by soldiers and sailors, 19,457; and the combined circulation 11 different Sunday school periodicals, for officers, teachers, and scholars of all grades, 1,689,451.

Of the important features of the year may be mentioned the World's Sunday School Convention held in Tokyo, Japan, during October, where it was reported that the total enrollment in the Sunday schools of the world was 30,296,531, two-thirds of which are found in North America. The society issues regularly eleven different periodicals adapted to different grades of pupils and representing different phases of Sunday School work. The largest is the *Sunday School World*. Two books were issued: *Belligerent Peter*, by Dr. David De Forest Burrell, and *They Also Serve* by Miss Alice Forman Wyckoff. Educational work is conducted by means of Teacher Training classes; there were 636 students enrolled during the year, a considerable gain over the previous year. The society still has urgent need for men to carry on its missionary work in rural districts.

The officers for 1921 were: President, Martin

Luther Finckel; Recording Secretary, William H. Hirst; Treasurer, John E. Stevenson; and Educational Adviser, George A. Barton. National headquarters are maintained at 1816 Chestnut Street, Philadelphia, Pa.

SUPERPOWER SURVEY. See POWER.

SURGERY. There have been no startling innovations in civil surgical practice since the recent war, and years before the latter operative technique appeared to have nearly reached its peak. Study is and has been directed largely to minimising the risk of operative death by overcoming or preventing shock and the consequences of hemorrhage and the anesthetics. In many cases the elaborate techniques developed before the war had to be abandoned for simpler and more extemporaneous procedures, especially in surgery of the chest. A study of contemporary operative surgery will often show that the brilliant results are the work of comparatively few men, based on extraordinary experience and completeness of equipment and secondary personnel. True progress in surgery would mean that the obscure provincial surgeon is able to duplicate the success of the few of most repute. In rare instances he does, and much may depend on the personal equation and individual outlook. The most skillful and experienced operator who takes the widest operative chances may at first sight appear as a bungler beside the less expert who plays safe. Any surgeon who points to his low operative mortality is expected to state his per cent of operability. The lower the mortality as a rule, the lower the operability. If a surgeon operates on 75 per cent of all who appear before him and shows a mortality of 5 per cent following operations he will probably be of more value to his community than the surgeon who had no death during a given year but whose operability was less than 50 per cent. Naturally emergency operations are not included in statistics, or are deducted from the totals in calculating percentages. In the very best work we see both high operability and low death rate, although when a case is technically inoperable operation is refused outright or limited to a makeshift procedure which does not enter into statistics. But while operative surgery is a grand institution for the individual it is making little headway against the national mortality. This is shown by statistics, for 85,000 people died of malignant tumors in the United States in the year 1920 which was a considerable increase over 1919, more than could be explained by increase of population. The total number of deaths in 1920 for appendicitis should have been nearly 16,000, this figure also representing an increase. The other great causes of death are medical rather than surgical. The large figures of cancer and appendix deaths must not be charged up to defects in surgical technique, for in a very large number of the cancer cases the disease was either inoperable from the start or had become so from neglect, and in the case of appendicitis it often happens that the symptoms are vague and that the surgeon is called in only at the last moment, while many patients will not consent to operation. Nevertheless it is difficult to comprehend the failure of surgery to check the advancing mortality, which can only be explained by increasing incidence of these diseases or possibly in part through indirect antisurgical propaganda on the part of cults and isms of various kinds. The public is certainly not becoming more fatalistic or skeptical.

SURGERY OF WOUNDS. See WOUNDS, TREATMENT OF.

SURINAM. See DUTCH GUIANA.

SURVEYING. See AERONAUTICS.

SWARTHMORE COLLEGE. A non-sectarian co-educational institution at Swarthmore, Pa.; founded in 1869. The enrollment for the fall session of 1921 was 510. There were 44 members in the faculty. The productive funds amounted to \$3,000,000. The library contained 40,000 volumes. The athletic field and fence were completed. President, Frank Aydelotte.

SWAZILAND. A British protectorate in South Africa, situated in the southeast corner of the Transvaal, and north of Zululand; formerly under the administration of the South African Republic, but latterly directly controlled by the British government. Area, 6678 square miles; population, estimated in 1914 at 107,117; European population, estimated in 1920 at about 1800. The seat of the government is at Moabane. The chief products are: Corn, tobacco, millet, peanuts, and vegetables. Cotton-growing has been attempted. Rich mineral resources are reported, but have not been developed with the exception of tin. The protectorate is under the high commissioner of South Africa and a resident commissioner. Resident commissioner at the beginning of 1921, D. Honey.

SWEDEN. A kingdom in the extreme north-western part of Europe occupying the eastern and larger part of the Scandinavian peninsula. Capital, Stockholm.

AREA AND POPULATION. Area, 173,035 square miles; population, Dec. 31, 1910, 5,522,403; Dec. 31, 1919, 5,847,037. The population is wholly Swedish with the exception (census of 1910) of 25,290 Finns, 7138 Lapps, and a few thousand others. The movement of population in 1919 was as follows: Births, 114,505; deaths, 84,247; marriages, 40,327. The immigrants in that year numbered 7809; the emigrants, 7337, of whom 3777 came to the United States. The chief towns with their population at the beginning of 1920 were: Stockholm, 415,201; Göteborg, 200,577; Malmö, 111,931.

AGRICULTURE. The number of farms under cultivation in 1919 was 423,758, of which 120,788 were of two hectares or less; 270,511 of 2 to 20 hectares; and 34,883 above 100 hectares.

The crops for 1920 and the estimates for 1921 were as follows:

Crop	1921,	1920,
	metric tons	metric tons
Wheat.....	342,000	287,000
Rye.....	724,000	588,000
Barley.....	257,000	240,000
Oats.....	981,000	1,025,000
Manoom.....	440,000	449,000
Potatoes.....	1,698,000	1,678,000
Sugar beets.....	1,437,000	1,039,000
Hay.....	4,153,000	5,307,000

The large wheat crop harvested caused much agitation for higher tariff protection against the importation of foreign flour, as it was claimed that in spite of the price difference of approximately 15 crowns per 100 kilos in favor of domestic flour, Swedish bakers continued to favor the American product, claiming that it is of superior quality.

ECONOMIC CONDITIONS. There was only a slow approach to normal conditions during 1921, Swe-

den suffering the same depression that prevailed in the other Scandinavian countries. Nevertheless, there was a steady improvement in the trade balance, a rapid decrease of prices, a stable exchange market and an improvement of the financial situation. The exchange value of the Swedish crown did not suffer the violent fluctuations that prevailed in the other Scandinavian countries. It remained fairly steady around 23 to 26 cents to the crown (par, 28.8). The industrial depression which continued down to the close of the year showed itself especially in the increasing number of unemployed who, according to an estimate at the end of the year, numbered more than 150,000. Wage agreements affecting about 300,000 workers were to expire Jan. 1, 1922, and at a conference between workmen and employers on December 15, the latter demanded a radical cut in wages ranging from 25 to 45 per cent of the existing scale while the workmen opposed an increase until the retail price index should become lower. At the close of the year most of the important Swedish industries were running only on half or part time. On Feb. 15, 1921, 22 factories had closed down. The number steadily increased during the year and by October 1, 68 had closed. Severe curtailment of output occurred in the engineering industry, shipbuilding and electrical industries, and the production of steel and iron was low, and the number of unemployed in the autumn was the largest as yet reached, being from 70,000 to 80,000. Soviet agents were buying grain in large quantities throughout the country in spite of the efforts of the authorities to cut down this trade. The trial of Bolshevik conspirators was going on at Stockholm in the autumn.

At the close of the year there seemed prospect of a better business condition, owing to the improved exchange situation as indicated by the approach of Swedish money almost to par with the American dollar. It seemed probable that foreign trade would revive and especially trade with the United States. In December the government continued the dispensation of the Imperial Bank from redeeming bank notes until March 31, 1922. At that time the Soviet gold in Sweden was placed at 500,000,000 to 600,000,000 kroners of which the Swedish mint had melted down an amount valued at \$31,200,000. As to trade with Russia and the Baltic states, it was still inactive at the close of the year and the negotiations for renewed commerce with the Soviet government were proceeding slowly.

COMMERCE. Estimates of foreign trade in round numbers for 1920 were as follows: Imports, \$903,960,000; exports, \$679,110,000. The following table shows the leading imports for 1919:

	Imports 1919, kroner	Exports 1919, kroner
Textile manufactures.....	331,147,000	16,982,000
Corn and flour.....	112,757,000	5,931,000
Colonial wares.....	175,133,000	1,503,000
Raw textile material and yarn.....	195,205,000	3,340,000
Minerals, of imports mostly coal.....	384,954,000	65,363,000
Metal goods, machinery, &c.....	234,363,000	288,846,000
Live animals and animal food.....	281,617,000	44,232,000
Hair, hides, and other animal products.....	131,870,000	22,376,000
Metals, raw and partly wrought.....	104,568,000	140,703,000
Timber, wrought and unwrought.....	23,122,000	443,570,000
Wood pulp, paper, and paper manufactures.....	13,949,000	388,019,000
Other articles.....	545,285,000	155,234,000
Total.....	2,533,968,000	1,575,697,000

FINANCE. The budget for 1921 totaled 1,000,300,000 kroner, an increase of 225,000,000 over the preceding year. It showed a deficit of about 272,000,000 crowns, covered in part by loans and in part by the use of capital assets. At the close of the year the details of the budget for 1922 were not worked out but it was reported as balancing at 902,000,000 crowns. The national debt which in 1913 amounted to 648,000,000 crowns increased during the year and in 1920 stood at 1,557,000,000 crowns. It had been reduced by Oct. 1, 1921, to 1,427,000,000 crowns of which 1,367,000,000 crowns were funded and the rest floating debt.

SHIPPING. At the end of 1921 the Swedish merchant marine had a total tonnage of 1,090,000 as compared with 1,100,000, Jan. 1, 1921.

RAILWAYS. The mileage open for traffic in 1921 was about 9500. The railway situation in Sweden in 1921 in large measure paralleled that in other European countries. The state railway system of Sweden in 1921 included about 3425 miles of line, which was about one-half of the standard gauge mileage and about 38 per cent of the total mileage. In 1921 expenses had increased and also rates, so that freight rates were from 100 per cent to 250 per cent higher than the 1913 rates, though they were reduced lower than those in force in 1920 by about 50 to 100 per cent of the prewar rates. These reductions with the decrease of materials would, it was thought, meet expenses in 1922.

GOVERNMENT. Executive power is vested in the king, who acts with the advice of the council of state, a responsible ministry. Legislative power is in a diet or parliament of two chambers of which the lower is elected by universal (male and female) suffrage. Members of the lower house were distributed among the party groups at the beginning of 1921 as follows: Socialists, 75; Moderates, 90; Liberals, 47; Agrarian parties, 29; Socialist Left, 7; of no party, 2. Upper house: Socialists, 49; Liberals, 41; Moderates, 37; Agrarian parties, 19; Socialist Left, 4. The Ministry as constituted, February 23, was as follows: Minister of State (Premier), Oskar F. von Sydow; Foreign Affairs, Count H. Wrangel; Justice, B. Ekeberg; Defense, General C. G. W. Hammarstiöld; Social Affairs, H. Elmquist; Communications, Walter Murray; Commerce, G. Malm; Finance, K. J. Beskow; Education and Ecclesiastical Affairs, B. Bergqvist; Agriculture, N. Hansson; without Portfolio, K. Dahlberg and M. Ericsson.

HISTORY

CABINET CHANGES. The policy of the government was laid down at the opening of the parliament in the middle of January. It included: Adherence to the League of Nations; the necessity of maintaining the country's means of defense; strict economy both in public and in private finances in order to meet the financial crisis; social reform; labor legislation; and tariff revision. The de Geer ministry, having lost the support of parliament, resigned in February and a new cabinet was formed under M. von Sydow who retained all of the old ministry with the exception of the minister of finance who was replaced by M. Beskow. Later, however, the minister of defense resigned office in May after parliament had refused his proposal of 225 days of military service and had fixed the period at 165 days. There was much complaint in Sweden at the

decision of the special commission appointed by the League of Nations which turned over the Åland Islands (see below) to Finland. The elections for Parliament gave the Social Democratic party a large plurality, political opinion having gravitated toward the Left after the danger from the extremists appeared to be removed. The result of this change was the overthrow early in October of the ministry under Oscar von Sydow, and the appointment as prime minister for the second time, of Hjalmar Branting. The new ministry was constituted as follows: Premier and Foreign Minister, Hjalmar Branting; Justice, A. Ackerman; Defense, Per Albin Hansson; Finance, Fredrik Thorsson; Interior, Herman Lindquist; Commerce, A. Orne; Public Works, C. E. Svensson; Culture, Olof Sjöström; Agriculture, S. Linders. Of the above members M. M. Hansson, Thorsson, and Svensson had held respectively the portfolios of Justice, Finance, and the Interior in the former Branting cabinet; and M. Lindquist had been Speaker of the Lower House of Parliament and served in 1919 as a delegate to the International Labor Congress at Washington. The coming into power of a Socialist ministry was taken by some as one of the causes of depression in business. According to the reports in the press, Swedish shipowners had latterly turned over to Germany vessels amounting to 55,000 tons and Germany had applied for the transfer of 30,000 tons more of Swedish shipping.

THE ÅLAND ISLANDS. As noted in the article, **WAR OF THE NATIONS**, the Åland Islands were placed on a neutral basis according to the decision of the League of Nations at Geneva, Oct. 22, signed by ten Powers. On Nov. 17 the Swedish foreign minister, Hjalmar Branting, received a note from the Russian foreign minister declaring that the Åland question could not be settled without consulting Russia, and that Sweden's signature of the agreement was a hostile act and in violation of the agreements between Sweden and the Soviet government. See **NAVAL PROGRESS**.

SWEDENBORGIANS. See **NEW JERUSALEM**, **CHURCH OF**.

SWEDISH LANGUAGE. See **PHILOLOGY**.

SWEDISH LITERATURE. See **SCANDINAVIAN LITERATURE**.

SWIMMING. This branch of sport scored an amazing success in 1921, particularly in the United States, where a veritable host of competitions was held. New records were a common occurrence, representatives of both sexes sharing in their establishment. Among the men the leaders were John Weissmuller and Norman Ross of the Illinois A. C., Warren and Pua Kealoha of Honolulu and Stephen Ruddy of the New York A. C. Weissmuller, a youth of seventeen, numbered among his achievements: 100 yards, free style, in a 60-foot pool (52 3-5 seconds); 150 yards, free style, in a 75-foot pool (1 minute 27 2-5 seconds). Pua Kealoha equaled the world's mark of 53 seconds for the 100 yards straightaway in open water. Ross swam 440 yards in 5 minutes, 3 4-5 seconds and one mile in 22 minutes, 38 1-5 seconds, performing both feats in a 60-foot pool. Ruddy lowered the breast stroke record for 220 yards to 3 minutes. Warren Kealoha reduced back stroke figures for the 100 and 150 yards respectively to 1 minute, 6 seconds and 1 minute, 47 2-5 seconds.

The women stars of the year were Miss Ethelda

Bleibtrey, Mrs. Charlotte Boyle Clune, Miss Sibyl Bauer, and Miss Gertrude Ederle, the latter a fourteen-year old girl. Miss Bleibtrey swam 100 yards in 1 minute, 3 2-5 seconds, Mrs. Clune covered 220 yards in 2 minutes 47 2-5 seconds, and Miss Bauer set new world's records for the 100 and 150 yards, back stroke, of 1 minute, 16 seconds and 2 minutes, 6 4-5 seconds, respectively.

The senior outdoor championships of the Amateur Athletic Union were held at various cities during the year. The winners in the principal events were: 100 yards, Pua Kealoha; 220 yards, John Weissmuller; 440 yards, Ludy Langer; 880 yards, Ludy Langer; high diving, Clarence Pinkston. The women's outdoor championships resulted as follows: 50, 100, 440 and 880 yards, Miss Ethelda Bleibtrey; one mile, Miss Thelma Darby; high and fancy diving, Miss Helen Meany; long distance swimming, Miss Ethelda Bleibtrey.

The winners in the senior indoor championships were: 100, 220, and 500 yards, Norman Ross, fancy diving, Clarence Pinkston. The Illinois A. C. won the 400-yard relay event and also triumphed in the water polo tournament.

Yale University won the intercollegiate championship, while Princeton University was supreme at water polo, making a clean sweep of its eight matches. Northwestern University captured the Western Conference title, but the honors at water polo went to the University of Illinois.

Henry Sullivan of Lowell, Mass., failed in four attempts to swim the English Channel.

SWINE. See LIVE STOCK.

SWINE ERYSIPELAS. See VETERINARY MEDICINE.

SWITZERLAND. A federal republic of Central Europe, comprising within its limits the highest of the Alps and the Jura mountains; divided into twenty-two cantons of which three are in turn divided into demi-cantons each. The capital is Berne.

AREA AND POPULATION. The total area is 15,976 square miles; total population, Dec. 1, 1920, 3,861,508. The following table shows area and population by cantons at the censuses of Dec. 1, 1910, and Dec. 1, 1920:

Canton	Area, sq. mi.	Population	
		Dec. 1, 1910	Dec. 1, 1920
Zurich.....	668	503,915	535,634
Berne.....	2,657	645,877	669,966
Lucerne.....	579	167,223	176,189
Uri.....	415	22,113	23,843
Schwyz.....	351	58,428	59,475
Obwalden.....	183	17,161	17,461
Nidwalden.....	112	13,788	13,966
Glarus.....	287	33,316	33,689
Zug.....	92	28,156	31,439
Fribourg.....	644	139,654	142,297
Solothurn.....	302	117,040	130,230
Basel-City.....	14	135,918	140,112
Basel-County.....	163	76,488	82,033
Schaffhausen (Schaffhouse) (1501).....	114	46,097	50,238
Appenzell (Ext.).....	101	57,973	55,113
Appenzell (Int.).....	61	14,659	14,542
Saint Gall.....	779	302,896	294,028
Graubünden.....	2,773	117,069	118,263
Aargau.....	542	230,634	239,777
Thurgau.....	381	134,917	135,153
Ticino (Tessin).....	1,088	156,166	153,457
Vaud.....	1,244	317,457	315,326
Valais (Wallis) (1815).....	2,027	128,381	128,274
Neuchâtel.....	312	133,061	130,671
Geneva.....	108	154,906	170,332
Total.....	15,976	3,753,293	3,861,508

The populations of the principalities at the census of Dec. 1, 1920, were as follows: Zurich,

206,120; Basel, 135,385; Berne, 103,986; Saint Gall, 69,733; Lausanne, 67,858; Geneva, 55,738; Lucerne, 43,696.

Protestants, according to the census of Dec. 1, 1920, numbered 2,218,589 and Roman Catholics, 1,586,826.

In 1918 primary schools numbered 4229 with 13,371 teachers and 555,353 pupils. There are seven universities with faculties of law, medicine, philosophy and science, and theology; totals of students and teaching staffs, respectively, in 1918 as follows: Zurich, teaching staff, 163, and students, 1825; Berne, 162 and 1787; Geneva, 155 and 1086; Basel, 130 and 1070; Lausanne, 108 and 999; Fribourg, 72 and 535; Neuchâtel, 67 and 199.

ECONOMIC CONDITIONS. In the late summer a serious condition of unemployment was reported along with a heavy falling off of exports and production. The remedies applied by the Federal Council were of no avail. These consisted in limitation of the imports and a new customs tariff, but they both seemed to aggravate rather than reduce the difficulties. It was proposed that a bonus on exports should be granted by a special national bank issue so contrived as not to run the risk of inflation. Serious unemployment developed during the year and the number of men out of work was placed in the autumn at 135,000. There was a long period of depression in the watch-making industry and 32,000 watch-makers were completely or partially employed. Among measures affecting business under consideration in the autumn was a proposal to change the constitution by a clause permitting factory owners and railway companies to request employees to work 54 hours a week, the new 8-hour working day having greatly deranged conditions in the railroads and factories; also a proposal to abolish the federal war profits tax.

COMMERCE. The total imports in 1920 were \$712,777,052 and the total exports, \$550,553,435.

FINANCE. Budget estimates for 1922 were: Revenue, 422,170,000 francs; expenditure, 522,070,000; deficit, 99,999,000 francs, an improvement of the budget for 1921 which showed: Revenue, 384,582,000 francs; expenditure, 517,847,000; deficit, 133,265,000 francs.

RAILWAYS. In 1921 in Switzerland, as elsewhere in Europe, the railways were experiencing difficult conditions, the majority of which were economic and due to circumstances following the war. On account of the high rate of exchange for Swiss money, neighboring countries were boycotting the Swiss routes for through traffic to escape paying the premiums required. The tourist business in Switzerland for various and obvious reasons had decreased materially, though hopes were entertained of its improvement. Unlike other European countries, however, Switzerland had not fallen behind in her maintenance of roadbed and equipment and these were in excellent condition, while the far-sighted policy of electrification previously adopted was being advanced as rapidly as possible.

GOVERNMENT. Executive and legislative are vested in a parliament of two chambers, namely, the state council and the national council, the former of 44 members, two chosen from each canton, and the latter of 189 representatives elected directly by the people. Executive authority is delegated by a federal council of seven members elected for three years by the federal assembly, that is, by both houses of parliament

united, which also elects the president of the confederation. President of the Confederation in 1921, Edmund Schultheiss; vice-president of the federal council, Dr. Robert Haab.

HISTORY. In the summer an accord was reached between France and Switzerland in the matter of the zones, which had caused some misunderstanding on both sides of the frontier. On May 12 the Swiss minister in France in recalling the age-long friendship between the two Powers, expressed his satisfaction and that of his country at being able to unite French families which had been broken up as a result of the system of internment in Switzerland. Within three years the right to visit about 6440 interned persons in Switzerland had been accorded to the French families. As to the manner in which the French soldiers interned in Switzerland had conducted themselves, the Swiss minister declared that his countrymen had learned to esteem them and sympathize with them.

THE PRESIDENT. At the close of the year the Swiss Federal Assembly, by a vote of 154 to 163, elected M. Robert Haab President of the Confederation to succeed M. Motta, who retained charge of the political department.

SYRACUSE, N. Y. See **GARBAGE AND REFUSE DISPOSAL.**

SYRACUSE UNIVERSITY. A non-sectarian co-educational institution of the higher learning at Syracuse, N. Y.; founded in 1870. The enrollment for the fall of 1921 was as follows: Liberal Arts College, 1379; Engineering, 333; Law, 205; Medicine, 186; Graduate School (estimated), 215; Agriculture, 104; Business Administration, 1063; Fine Arts, 726; Teachers College, 141; Forestry, 341; Public and Dramatic Art (estimated) 107; Library Economy, 44; Home Economics, 230; Nursing, 74; total, not including duplicates, 4723; for the summer session, 460; Extension students, 734; grand total, 5917. There were 450 members in the faculty including 14 additions since last year. The library contained 110,832 volumes and 43,000 pamphlets. President, James R. Day, D.C.L., LL.D.

SYRIA. A former province of the Turkish empire in Asia Minor comprising the region between the Euphrates river and the Syrian desert on the east, and the Mediterranean sea on the west, and extending from the Alma Dagh Mountains on the south to Egypt on the south; recognized in 1920 as an independent state under a mandatory power, the mandate being bestowed on France at the Supreme Council of the Allied Powers at San Remo, April 25, 1920. Area of territory under the French mandate estimated at about 60,000 square miles with a population of about 3,000,000, who are mainly Sunnite Mohammedans. The region was divided under the French into four governments as follows: Government of Aleppo from the Euphrates region to the Mediterranean; Great Lebanon extending from Tripoli to Palestine; Damascus, including Damascus, Hama, Hems, and the Hauran; and the country of Mount Arisarieh. Chief cities with estimates of population: Damascus, 250,000; Aleppo, 250,000; Beirut, 180,000; Hems, Hama, and Aintat, each between 60,000 and 80,000.

PRODUCTION. The chief occupation is agriculture, but resources have not been fully developed. Industry is restricted by the lack of raw materials as well as by the inclination of the inhabitants to

commerce. Latterly there has been a considerable development of the weaving industry.

COMMERCE. Previous to the war, exports averaged 60,000,000 francs and imports, 124,000,000 francs. After the war exports declined owing to the lack of labor and modern machinery in agriculture. The chief exports are: Wool, hides, cereals, native art wares, vegetable oils, fruits, nuts, wines, tobacco, and licorice. Figures for total imports were not available. The average annual imports of cotton goods before the war were valued at 45,000,000 francs; of woolen goods, 12,000,000 francs; silks and velvets, 25,000,000 francs; iron and steel for construction, 7,500,000 francs; canned goods and wines, 8,000,000 francs; chemicals and dye products, 5,000,000 francs.

HISTORY

THE ORGANIZATION UNDER THE FRENCH MANDATE. In January the French Prime Minister M. Leygues declared before the French Chamber the intention of France to retain permanently all of Syria. French policy in Syria, as set forth by the government, looked to the admission of the native population into the administration to the greatest possible degree and a corresponding limitation of French activity. Complaint was made, however, that the number of French officials in Syria was excessive. This was in part explained by the difficulty of setting up machinery of government. The fundamental principle of the Syrian state was self-government on the part of the different regions that composed it, namely, the Libanus, the territory of Alaouites, and of the Druses and the states of Aleppo and Damascus, each of which had to have an independent constitution subject to some kind of federal control. Each state was to preserve its traditional liberties and elect its own executive and legislature. Owing to the separatist tendencies of the population there was much difficulty in setting up a federal government. Many plans were proposed ranging from a pure confederation of the Syrian states to a sort of dual government which divided the Syrian populations from those of the Libanus. The general tendency, however, was toward a system based on agreements among the states through the intervention of France, having to do mainly with matters of legislation, customs, and finance. As soon as these questions were settled it was planned to set up at Beirut a sort of permanent diet, consisting of a small number of delegates elected from each state, which would have control over the general interests of the country. The tendency in short was toward the least possible centralization.

CILICIA. According to press dispatches, December 2, an agreement was reached between the Angora government and the Franklin-Bouillon Mission in respect to the necessary guarantees for the Christian population of Cilicia. These included the abrogation of the law levying 40 per cent on the property of the inhabitants during the campaign of Sakaria; the postponement of military conscriptions; the creation of a mixed Franco-Turkish commission, including representatives from the communes of Cilicia to safeguard property; complete liberty of person and property; immediate and complete amnesty.

SZUMOWSKA, ANTOINETTE. See **MUSIC, Artists, Instrumentalists.**

T

TAGLIAPIETRA, GIOVANNI. Italian baritone, died in New York, April 11. He was born in Venice about 1850. After his debut at Florence he sang in Paris and London, and in the eighties was a prime favorite with the New York public. His first wife was the famous pianist Teresa Carreño.

TAHITI. See OCEANIA, FRENCH ESTABLISHMENTS IN.

TAIWAN. Official name of FORMOSA (q. v.).

TALAAT PASHA. See NECROLOGY and TURKEY.

TALC AND SOAPSTONE. The United States is by far the greatest producer of talc and soapstone, and it consumes even more than it produces. In 1919 it produced 68 per cent of the world's supply and consumed 79 per cent. The production of talc and soapstone in 1920 exceeded that in any previous year both in quantity and in value, according to the United States Geological Survey. The sales in 1920 amounted to 224,290 short tons, valued at \$3,090,265, an increase in 1920 over 1919 of 21 per cent in quantity and 31 per cent in value. The quantity exceeded by 2 per cent that of 1917, the previous record-quantity year, and the value exceeded by 15 per cent that of 1918, the previous record-value year. The quantity of talc reported to the Geological Survey as ground was 178,505 tons, valued at \$2,142,894, or 18 per cent more than in 1919. The value of the ground talc was the highest on record, exceeding that for 1919 by 34 per cent and that for 1918, the previous record-value year, by 15 per cent. The average price of ground talc in 1920 was the highest on record, namely, \$12 per short ton, which may be compared with \$10.55 in 1918 and 1919 and \$8.42 in the prewar year 1913. The manufactured soapstone sold amounted to 19,707 tons, valued at \$709,400, not the highest annual output recorded, but the highest annual value. Vermont led the other States in production, with 86,489 short tons, or 39 per cent of the total quantity, valued at \$816,794. New York led in the value of talc produced, but was second in quantity, with 30 per cent of the total, 68,168 tons, valued at \$977,228.

TANGANYIKA TERRITORY. A colony under British occupation, formerly GERMAN EAST AFRICA. Evacuation of the German forces was complete by the beginning of 1919 when the whole colony passed under British and Belgian administration. It was one of the mandate territories under the League of Nations and was divided into British and Belgian spheres, the Belgian sphere including the provinces of Ruanda and Urundi on the borders of Lake Tanganyika with headquarters at Kigali. The headquarters of the British sphere is at Dar-es Salaam. According to the decree of July 22, 1920, the head of the local government was to be a governor aided by an executive council of nominated members. Area, estimated at 384,180 square miles, with a coast line of about 620 miles; population, Jan. 1, 1913,

about 3,500,000, chiefly of mixed Bantu stock. The country is extremely fertile and affords possibilities of extensive production of raw materials, but labor is limited. Its natural products include: Corn, cotton, hides and skins, oil nut, sisal, copper, coffee, etc.; and those which enter into the export trade are: Sisal, cotton, hides and skins, copper, coffee, and nuts. The minerals include copper, lead, silver, mercury, graphite, and asbestos. The forests contain an abundance of valuable wood, including cedar, mahogany, and teak. Commerce for the year ending May 31, 1920, was as follows: Exports, 19,940,156 rupees; imports, 17,376,405 rupees. A large proportion of the trade is with Zanzibar. The chief items among the imports are: Cotton piece goods, rice, tobacco products, wines, and liquors. The link in the Cape-to-Cairo railroad was completed as far as Salisbury, Rhodesia, whence a branch runs to Beira. On the south it had reached as far as Sennar on the Blue Nile. In 1921 work was begun on the bridge across the Zambesia river at Chinde, which was to open trade with Tanganyika Territory, and Lake Nyassa. Governor and commander-in-chief at the beginning of 1921, Sir H. A. Byatt.

TARIFF. See UNITED STATES and AGRICULTURAL LEGISLATION.

TASMANIA. A state in the Commonwealth of Australia, consisting of the island of Tasmania and several small islands. Area including the island of Macquarie 26,216 square miles; estimated population, June 30, 1920, 216,643, as compared with 191,211 in 1911. Capital, Hobart, with a population, including suburbs, estimated in June, 1920, at 50,000. The production of the principal crops in bushels in 1919-20 was: Oats, 1,242,258; peas, 300,545; wheat, 213,589. The fruit industry is considerable, the production in that year being 2,866,813 bushels. Live stock in 1920 were as follows: Sheep, 1,781,425; cattle, 214,442; horses, 39,452; pigs, 35,530. No later figures for imports and exports were available than those given in the preceding YEAR BOOK for 1918-19, when they were, respectively, £608,786 and £1,002,093. The budget for 1919-20 was: Revenue, £1,815,031; expenditure, £1,828,301. The railway mileage, June 30, 1919, was about 747 of which 601 were state-owned. The executive power is in a governor or administrator, appointed by the Crown; and the legislative power, in a legislative council and a house of assembly, elected for six years and three years, respectively. Governor at the beginning of 1921, Sir W. L. Allardye; Prime Minister, Sir W. H. Lee. See AUSTRALIA.

TAUSSIG, EDWARD DAVID. Naval officer, died at Newport, R. I., January 29. He was born at St. Louis, Mo., Nov. 20, 1847; graduated at the United States Military Academy in 1867; and had risen through the successive grades to the rank of rear-admiral, May 15, 1908. He distinguished himself in his early career for services during the earthquake at Arica under Commander Gillis. He was in command of the *Bennington* during the

Spanish-American war and took possession of Wake Island. He also assumed control over the island of Guam, Feb. 1, 1899. He served afterwards in the Philippines and in North China. He was subsequently in command of the navy yards at Washington, Boston, Pensacola, New York, and finally at Norfolk (1907). He also served as commanding officer on the *Enterprise*, the *Independence*, and the *Indiana*. He retired, Nov. 20, 1909.

TAYLOR, BERT LESTON. Author, died, March 19. He was best known for his column in the *Chicago Daily Tribune*, entitled, "A Line O' Type or Two." He was born at Goshen, Mass., Nov. 13, 1866; and educated at the College of the City of New York. The newspaper feature above mentioned was widely quoted during many years and its success inspired a host of imitators and led to the adoption of similar features in the pages of many leading newspapers throughout the country. He published the following volumes: *The Well in the Wood* (1904); *The Charlattans* (1906); *A Line O' Verse or Two* (1911); *The Pipesmoke Carry* (1912); *Molley Measures* (1913), etc.

TAYLOR, CHARLES HENRY. Journalist, died at Boston, Mass., June 22. He was owner of the *Boston Globe*. He was born at Boston, Mass., July 14, 1846; and educated in the public schools. He became a printer and reporter on the *Boston Traveler*. He was a member of the Massachusetts house of representatives in 1872 and clerk of the house in 1873. He had meanwhile served in the Civil War in a Massachusetts regiment and was wounded at Fort Hudson, La., June 13, 1863. After 1873 he was editor and manager of the *Boston Globe*.

TAYLOR, (FRANK) WALTER. Artist, died in 1921. He was born at Philadelphia, Pa., March 8, 1874; studied art in Paris; and established a studio in Philadelphia in 1898. He received the medal of honor at the Panama Exposition of 1915. Besides illustrating various books he was the author of many short stories in the leading magazines.

TAYLOR, SAMUEL MITCHELL. Former Congressman, died at Washington, D. C., September 13. He was born in Itawamba County, Miss., May 25, 1852; and after a common school education and study of the law, began practice at Tupelo, Miss., in 1876. He was elected to the Mississippi house of representatives in 1879, but removed to Arkansas in 1887 and was prosecuting attorney there for the eleventh judicial district of Arkansas from 1889 to 1895. He was a member of Congress from Arkansas from 1913 to 1921.

TEACHERS. See EDUCATION.

TELEPHONY. The year was marked by gratifying improvement in telephone service. The demoralization of the operating personnel, that had been so marked for two years following the war, was superseded by prompt, efficient service and greater facility in obtaining station instruments desired by new subscribers. Business and industrial depression had but little effect on the amount of activity demanded of the telephone companies. In fact, the slack period of business gave these companies an opportunity to make certain extensions and improvements which, when completed, will put them in excellent condition to handle the inevitably increased volume of traffic that will come in the near future. Lines were extended, new central offices built and

equipped and the manufacture of new apparatus actively carried on.

As illustrating the importance of the telephone in our national life, certain statistics given in the latest report of the American Telephone and Telegraph Company (Bell system) are of interest. On Dec. 31, 1921, there were 13,380,000 owned and operated stations in the Bell system; nearly two-thirds of all the telephones in the world; and during the year 1921, 778,284 telephones were added to the system. To show further the significance of these figures, the report states that in the year 1900, there was one Bell Telephone station to every 90 persons in the United States; while in 1921, there was one to every 8 persons. It must be noted, too, that during this period, the population of the United States increased 45 per cent and general volume of business increased 100 per cent; but the number of telephones in use increased 900 per cent. In actual figures, from 1,350,000 to almost 14,000,000.

In 1921, the Bell System had an operating revenue amounting to \$497,088,233, which was greater than that for 1920 by \$47,646,118. Total operating expenses were \$363,687,283, an increase of \$17,867,666 over that item in 1920. There was a large increase in the number of stockholders of the American Telephone and Telegraph Company during the year, the total as of Dec. 31, 1921, being 186,342, an increase of 46,894 over the previous year. It is significant, also, that there were more women shareholders than men and that 25,700 employees of the Bell System were owners of stock.

The engineering departments of the various radio companies were working in close coöperation with the telephone companies, to their common advantage. As mentioned in the 1920 YEAR BOOK (see WIRELESS TELEGRAPHY and TELEPHONY), radio conversations had been carried on between shore stations and Santa Catalina Island, thirty miles off the California Coast. Upon the completion of the submarine cable between Havana, Cuba, and Key West, Fla., it became possible to converse successfully over the land lines from Florida to California and thence by radio to Catalina: a total distance of 5500 miles. A notable achievement, particularly when it is realized that each form of speech transmission, through submarine cable, then over a wire circuit and then by radio through space, involves peculiar, characteristic difficulties; yet the persons speaking may not be aware that they are conversing in any other than the usual manner over a short wire circuit. Three cables were laid between Cuba and Florida and constitute the longest deep-sea telephone cables in the world. Each cable can transmit simultaneously one telephone conversation and eight telegraph messages. In addition to the great facility of communication provided by them, the element of secrecy, as contrasted with radio between two countries has a certain strategic value.

The installation of "machine switching," in place of manually operated boards in central exchanges proceeded satisfactorily in a number of cities. It was realized, however, that its growth must be gradual, not only on account of the unfamiliarity of the public with "dial" instruments, but also because the machines themselves are so delicately constructed and of such complication that a specially trained force of main-

tainers are required. The Company maintained a training school for men whom it was fitting for such positions and was thus insuring the mechanical success of the new system.

TELMANYI, EMIL. See *MUSIC, Artists, Instrumentalists.*

TEMPLE UNIVERSITY. A co-educational institution of higher learning supported by the State at Philadelphia, Pa.; founded in 1884. The enrollment for the fall of 1921 was as follows: College of Liberal Arts and Sciences, 530; Teachers College, 1514; School of Theology, 42; School of Law, 233; School of Medicine, 87; School of Dentistry, 341; School of Pharmacy, 293; Schools of Chiropody, 65; School of Commerce, 1831; School of Music, 199; University High School, 616; Vocational Students, 841; Training School for Nurses, 46; total, 6638. For the summer session of 1921 the enrollment was as follows: College of Liberal Arts and Sciences, 42; Teachers College, 105; School of Commerce, 108; School of Music, 218; University High School, 155; total, 628. There were 386 members in the faculty including 9 additions. The library contained 17,735 volumes. President, Russell H. Conwell, D.D., LL.D.

TENNESSEE. POPULATION. According to the report of the census of 1920, there were 2,337,885 residents in the State, Jan. 1, 1920, as compared with 2,184,789.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn	1921	3,516,000	90,713,000	\$47,171,000
	1920	3,511,000	98,308,000	85,528,000
Oats	1921	260,000	5,330,000	2,558,000
	1920	250,000	4,950,000	3,816,000
Wheat	1921	450,000	4,500,000	5,400,000
	1920	424,000	4,028,000	7,855,000
Tobacco	1921	105,000	178,750,000	15,750,000
	1920	130,000	194,900,000	18,980,000
Hay	1921	1,379,000	11,588,000	24,351,000
	1920	1,406,000	11,794,000	36,644,000
Potatoes	1921	35,000	1,820,000	3,003,000
	1920	35,000	2,905,000	4,648,000
Swt. potatoes	1921	44,000	4,400,000	4,180,000
	1920	42,000	4,284,000	5,268,000
Sor. syrup	1921	42,000	4,032,000	2,376,000
	1920	47,000	4,230,000	4,272,000
Cotton	1921	707,000	340,000	27,200,000
	1920	840,000	325,000	21,131,000

¹ Pounds. ² Tons. ³ Gallons. ⁴ Bales.

CHARITIES AND CORRECTIONS. The State institutions include: Tennessee Girls' Vocational School, Tullahoma; Eastern Hospital for the Insane, Knoxville; Central Hospital for the Insane, Nashville; Western Hospital for the Insane, Bolivar; Home for Confederate Veterans, Nashville; Main Prison, Nashville; Brushy Mountain Prison, Petros. The State was building the Tennessee Home and Training School for Feeble-Minded Persons, Nashville, as provided by act of the legislature in 1919, and provision was made for a Vocational School for Colored Girls.

OFFICERS. Governor, H. A. Taylor; Secretary of State, Ernest N. Haston; Treasurer, Hill McAllister; Controller, John B. Thomason; Adjutant-General, Phillip I. Brumit; Superintendent of Public Instruction, John B. Brown; Attorney-General, Frank M. Thompson.

JUDICIARY. Supreme Court: Chief Justice, D. L. Lansden; Associate Justices; Grafton

Green, Frank P. Hall, Collin P. McKinney, N. L. Bachman.

TENNESSEE, UNIVERSITY OF. A non-sectarian co-educational institution of higher learning at Knoxville, Tenn.; founded in 1794. The enrollment for the fall of 1921 was 1995. There were 182 members in the faculty of which 8 were new. The productive funds amounted to \$425,000 and the income to \$678,795. The library contained 42,741 volumes. Ayres Hall (liberal arts building) and Agricultural Building were completed at a cost of \$700,000. President, Harcourt A. Morgan, B.S.A., LL.D.

TENNIS. The United States players successfully defended the Davis Cup, emblematic of the world's tennis championship, in 1921, and one of their number, William T. Tilden, 2nd, of Philadelphia, carried off the world's individual title both on hard and turf courts. Among the women exponents of the game Mrs. Molla Bjurstedt Mallory of the United States regained her laurels through her defeat of Mlle. Suzanne Lenglen of France, who had swept all before her the previous year. The brilliant showing made by Vincent Richards, a young Fordham College student, was another notable feature of 1921.

The Japanese team consisting of Ichiya Kumagai and Zeno Shimidzu won the right to challenge the United States team, Tilden, William M. Johnston, R. Norris Williams and Watson M. Washburn—for the Davis Cup, following the Nippon players' victories over the Philippine Islands, Belgium, and Australasia in the preliminary rounds. Other preliminary matches resulted in Great Britain's defeat of Spain, Belgium's defeat of Czecho-Slovakia, and Australasia's defeat of Great Britain, Canada, and Denmark.

A complete summary of the Davis Cup matches follows: First Round—*Great Britain vs. Spain*—R. Lycett (G. B.) defeated M. Alonso (S.) 6-4, 6-2, 6-4; F. G. Lowe (G. B.) defeated Count de Gomar (S.) 6-3, 4-6, 6-1, 6-0; Lycett (G. B.) defeated de Gomar (S.) in straight sets; Alonso (S.) defeated Lowe (G. B.) 8-6, 6-1, 8-6; M. Woosnam and R. Lycett (G. B.) defeated Alonso and de Gomar (S.) 2-8, 10-8, 6-2, 6-2. *Belgium vs. Czecho-Slovakia*—M. Lammens (B.) defeated M. Ardeit (C. S.) 6-3, 6-2, 4-6, 6-1; M. Zemla (C. S.) defeated M. Washer (B.) 4-6, 6-3, 9-7, 2-6, 6-2; Washer (B.) defeated Ardeit (C. S.) 4-6, 7-5, 7-5, 6-3; Zemla (C. S.) defeated Lammens (B.) 6-2, 6-4, 6-2; Washer and Lammens (B.) defeated Zemla and Just (C. S.) 4-6, 3-6, 8-6, 6-4, 6-0. *Australasia vs. Canada*—J. O. Anderson (A.) defeated E. M. Lafambois (C.) 4-6, 7-5, 6-0, 6-2; J. B. Hawkes (A.) defeated P. Bennett (C.) 8-6, 6-4, 7-5; C. V. Todd (A.) defeated Lafambois (C.) 6-2, 6-3, 6-8, 6-2; Anderson (A.) defeated Bennett (C.) 6-3, 6-0, 6-2; Anderson and Todd (A.) defeated Bennett and G. D. Holmes (C.) 6-2, 6-3, 6-1. *Japan vs. Philippine Islands*—Japan won by default.

Second Round—*Australasia vs. Great Britain*—Anderson (A.) defeated Woosnam (G. B.) 4-6, 6-2, 6-4, 6-4; Lowe (G. B.) defeated Hawkes (A.) 6-4, 6-4, 6-1; Anderson (A.) defeated Lowe (G. B.) 6-2, 6-3, 3-6, 6-2; Woosnam (G. B.) defeated Hawkes (A.) 6-3, 0-6, 7-9, 6-2, 6-3; Anderson and Todd (A.) defeated Woosnam and Turnbull (G. B.) 4-6, 9-7, 6-2, 6-4. *India vs. France*—Samajueilh (F.) defeated Jacobs (I.) 6-3, 8-6, 9-7; Sleem (I.) defeated Laurentz (F.)

4-6, 6-2, 3-6, 6-2, 6-0; Sleem (I.) defeated Sama-jueilh (F.) 6-1, 6-3, 6-3; Fyzee and Dean (I.) defeated Laurentz and Brugnion (F.) 6-1, 5-7, 2-6, 6-2, 6-4. *Denmark vs. Argentina*—Denmark won by default. *Japan vs. Belgium*—Japan won by default.

Semi-Final Round—Australasia vs. Denmark—Anderson (A.) defeated Tegner (D.) 6-0, 6-2, 6-1; Peach (A.) defeated Ingerslev (D.) 3-6, 6-2, 6-0, 3-6, 6-2; Anderson (A.) defeated Ingerslev (D.) 6-0, 6-1, 7-5; Peach (A.) defeated Tegner (D.) 7-5, 6-2, 6-4; Anderson and Todd (A.) defeated Tegner and Henrickson (D.) 6-3, 6-3, 6-2; *Japan vs. India*—Kumagae (J.) defeated Sleem (I.) 9-7, 6-1, 6-1, Shimidzu (J.) defeated Fyzee (I.) 6-2, 6-1, 9-7; Kumagae (J.) defeated Fyzee (I.) 3-6, 6-3, 6-3, 9-7; Shimidzu (J.) defeated Sleem (I.) 7-5, 2-6, 6-0, 6-2; Kumagae and Shimidzu (J.) defeated Fyzee and Dean (I.) 6-1, 6-1, 2-6, 2-6, 6-0.

Final Round—Japan vs. Australasia—Shimidzu (J.) defeated Anderson (A.) 6-4, 7-5, 6-4; Kumagae (J.) defeated Hawkes (A.) 3-6, 2-6, 8-6, 6-2, 6-3; Kumagae (J.) defeated Anderson (A.) 3-6, 7-5, 2-6, 6-2, 6-1; Shimidzu (J.) defeated Hawkes (A.) 4-6, 6-3, 6-2, 6-2, Todd and Anderson (A.) defeated Shimidzu and Kumagae (J.) 4-6, 6-3, 6-2, 6-2.

Challenge Round—United States vs. Japan—Johnston (U. S.) defeated Kumagae (J.) 6-3, 6-4, 6-2; Tilden (U. S.) defeated Shimidzu (J.) 5-7, 4-6, 7-5, 6-2, 6-1; Johnston (U. S.) defeated Shimidzu (J.) 6-3, 5-7, 6-2, 6-4; Tilden (U. S.) defeated Kumagae (J.) 9-7, 6-4, 6-1; Williams and Washburn (U. S.) defeated Kumagae and Shimidzu (J.) 6-2, 7-5, 4-6, 7-5.

The winners of the various national tournaments held in the United States during 1921 were:

Singles, William T. Tilden, 2nd; doubles, Tilden and Vincent Richards; clay court singles, W. T. Hayes; clay court doubles, Hayes and C. B. Herd; indoor singles, Frank Anderson; indoor doubles, Richards and S. H. Voshell; women's singles, Mrs. Molla Bjurstedt Mallory; doubles,

William T. Tilden, 2nd, won the English singles championship for the second successive year, defeating R. Norton of South Africa in the final round by a score of 4-6, 2-6, 6-1, 6-0, 7-5. The English doubles were won by R. Lycett and M. Woosnam. Mlle. Suzanne Lenglen was victorious in the women's singles and with Miss Elizabeth Ryan of California captured the English women's doubles.

TEXAS. POPULATION. According to the report of the census of 1920, there were 4,663,228 residents in the State, Jan. 1, 1920, as compared with 3,896,542 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	6,227,000	156,920,000	\$ 84,737,000
	1920	5,487,000	142,662,000	119,836,000
Wheat.....	1921	2,081,000	20,810,000	20,810,000
	1920	1,583,000	20,579,000	35,396,000
Oats.....	1921	1,865,000	33,570,000	13,092,000
	1920	1,490,000	32,780,000	21,635,000
Hay.....	1921	842,000	1,105,000	10,806,000
	1920	750,000	1,991,000	13,620,000
Peanuts.....	1921	195,000	123,825,000	4,210,000
	1920	174,000	125,280,000	7,517,000
Rice.....	1921	155,000	5,596,000	5,652,000
	1920	281,000	9,554,000	11,942,000
Potatoes.....	1921	37,000	2,072,000	3,937,000
	1920	36,000	1,872,000	4,118,000
Swt. potatoes...	1921	100,000	8,200,000	8,970,000
	1920	95,000	9,975,000	12,968,000
Sor. syrup.....	1921	35,000	3,045,000	2,132,000
	1920	36,000	3,384,000	3,553,000
Cotton.....	1921	10,979,000	4,200,000	177,100,000
	1920	11,898,000	4,345,000	286,789,000
Gr. sorghums...	1921	1,950,000	56,550,000	23,186,000
	1920	1,906,000	60,992,000	73,800,000
Sugar cane.....	1921	18,000	3,192,000	.....
	1920	16,400	2,215,000	.....

¹ Tons.

² Peanuts.

³ Gallons.

⁴ Bales.

IRRIGATION. The accompanying table issued by the United States Bureau of the Census summarizes irrigation conditions at the Census of 1920 with corresponding figures for 1910.

	Census of—	
	1920	1910
Number of all farms.....	436,033	417,770
Approximate land area of the state.....	acres.. 167,934,720	167,934,720
All land in farms.....	acres.. 114,020,621	112,435,067
Improved land in farms.....	acres.. 31,227,503	27,360,666
Number of farms irrigated.....	5,974	5,238
Area irrigated.....	acres.. 586,120	451,130
Area enterprises were capable of irrigating.....	acres.. 1,160,542	690,991
Area included in enterprises.....	acres.. 1,687,447	1,253,173
Per cent irrigated:		
Number of all farms.....	1.4	1.3
Approximate land area of the state.....	0.3	0.3
Land in farms.....	0.5	0.4
Improved land in farms.....	1.9	1.6
Excess of area enterprises were capable of irrigating over area irrigated.....	acres.. 564,422	239,861
Excess of area included in enterprises over area irrigated.....	acres.. 1,101,327	802,043
Area of irrigated land reported as available for settlement.....	acres.. 346,446	(1)
Capital invested.....	\$35,072,739	\$13,487,347
Average per acre enterprises were capable of irrigating.....	30.48	19.52
Estimated final cost of existing enterprises.....	39,860,871	14,754,172
Average per acre included in enterprises.....	23.62	11.77
Average cost of operation and maintenance per acre.....	6.92	3.25

¹ Not reported in 1910.

Miss M. Browne and Mrs. L. R. Williams; women's indoor singles, Mrs. Molla Bjurstedt Mallory; doubles, Mrs. Wightman and Miss Zinderstein.

MINERAL PRODUCTION. Metal mines in Texas produced 544,000 ounces of silver in 1921 as compared with 511,401 ounces in 1920. The principal producing mine was the Presidio mine, at Shafter,

which was operated steadily throughout the year. A very small quantity of gold was also obtained from Texas ores in 1921, but no lead or copper, according to the United States Geological Survey.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Texas was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The accompanying table gives a comparative summary for 1919 and 1914:

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	5,724	5,084	12.6
Persons engaged in manufactures.....	131,389	91,114	44.2
Proprietors and firm members.....	5,393	4,787	12.7
Salaried employees.....	18,276	11,474	59.3
Wage earners (average number).....	107,720	74,853	43.9
Primary horsepower.....	441,942	335,791	31.6
Capital.....	\$588,797,000	\$283,544,000	107.7
Services.....	147,908,000	59,179,000	149.9
Salaries.....	31,565,000	14,358,000	119.8
Wages.....	116,343,000	44,821,000	159.6
Materials.....	701,171,000	253,144,000	177.0
Value of products.....	999,996,000	361,279,000	176.8
Value added by manufacture (value of products less cost of materials).....	298,825,000	108,135,000	176.3

CHARITIES AND CORRECTIONS. The name, location, and population of the respective State institutions were as follows: Texas School for the Blind, Austin, 230; Texas School for the Deaf, Austin, 473; Deaf and Dumb and Blind Institute for Colored Youths, Austin, 183; State Orphans' Home, Corsicana, 424; Texas Confederate Home, Austin, 441; Confederate Woman's Home, Austin, 102; State Tuberculosis Sanatorium, Carlsbad, 1047; State Juvenile Training School, Gatesville, 956; Girls' Training School, Gainesville, 71; State Epileptic Colony, Abilene, 616; State Colony for Feeble-Minded, Austin, 128; State Lunatic Asylum, Austin, 1740; Pasteur Institute, Austin, 385; North Texas Hospital for Insane, Terrell, 1866; Southwestern Insane Asylum, San Antonio, 2031; East Texas Hospital for Insane, Rusk, 611; State Penitentiary, Huntsville, 2700.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Provision against deceptive advertisements relating to goods or services offered to the public; amendment facilitating the enforcement of the law relating to the rights and disabilities of aliens; provision for the sanitation of bakeries and the insurance of purity of their products; regulation of the business of barbers, hairdressers, etc.; provision for prophylactic treatment of the eyes of the newly born; amendment designed to make more effective provisions of existing law in respect to the conservation of the State's natural resources; provision for the organization of coöperative marketing associations; authorization of international trading corporations under the laws of the State; proposed constitutional amendment restricting suffrage to native born or naturalized citizens, and permitting the legislature to authorize absentee voting; provision against the employment of persons having con-

tagious diseases in hotels, restaurants, etc.; requiring persons or associations conducting institutions for the care of infants and the sick to obtain a license from the State Board of Health; requiring live stock commission merchants to give bond; providing method by which cities of less than 5000 may adopt commission form of government; proposed constitutional amendment for the purpose of granting pensions to confederate soldiers and sailors and their widows; provision against soliciting or receiving money for alleged service in securing a "preference" from any common carrier; extending the zoning privilege to cities under 5000.

OFFICERS. Governor, Pat M. Neff; Lieutenant-Governor, Lynch Davidson; Secretary of State, S. L. Staples; Controller, Lon A. Smith; Treasurer, Jno. W. Baker; Attorney-General, C. M. Cureton; Superintendent of Public Instruction, Miss A. W. Blanton; Adjutant-General, Thomas D. Barton.

JUDICIARY. SUPREME COURT. Chief Justice, Nelson Phillips; Associate Justices: T. B. Greenwood, William Pierson.

TEXAS, UNIVERSITY OF. A co-educational State institution at Austin, Texas; founded in 1881. The main university is at Austin but the medical branch is at Galveston and the College of Mines is at El Paso. The enrollment for the fall of 1921 was 4470 and for the summer session was 2558. The faculty numbered 332. The endowment consisted of 2,000,000 acres of semiarid grazing lands. The income amounted to \$271,683. The library contained 194,400 volumes. President, Robert E. Vinson, D.D., LL.D.

TEXTILE MANUFACTURING. The textile industry in the United States during 1921 had participated in the general process of deflation and had made notable advances in this direction, but at the end of the year it faced two serious conditions for which the solution then had not been reached. First, there was the matter of wages as reductions had not been on a scale demanded in view of the general decline in values and prices, and in the second place there was the question of the tariff which was under discussion in the Congress as a bill was being prepared for enactment and hearings were being held.

CENSUS OF TEXTILES MANUFACTURES. The Census of Manufactures for 1919 was being prepared for publication during 1921 and at the end of the year there was available certain advance information of considerable interest in connection with the textile industry. Of course 1919 was an abnormal year, but it did serve as a

rest point in comparison with the material tabulated for the industrial census taken in 1914, 1909, and earlier years. The changes in these five-year periods reflect general transformations within the industry as well as in commercial conditions. The 1919 Census was said to mark a period of replacing old equipment with new and the introduction of modern machinery, plant, and methods. Along with this went a decrease in working hours and other economic changes.

TEXTILE MILL CONSTRUCTION. Naturally a decline in the number of new textile mills built in 1921 was to be expected in view of commercial and industrial conditions, but the decrease was less than what might have been anticipated and was explained by the fact that there was not the over expansion in textile mills and manufacturing during the war such as characterized other industries. In the process of deflation and readjustment in the textile world generally, the industrial conditions seemed to clear somewhat and millowners were considering what additions and extension were necessary and which they had hesitated to make on the score of high material and construction costs. At the end of the year active preparations were being made to put such work under way as soon as conditions were advantageous.

According to the carefully compiled construction summary of the *Textile World*, which is abstracted herewith as usual, the record of new mill units and important enlargements in 1921 did not convey the whole story of growth during the year 1921. There was besides new construction a tremendous amount of new machinery installed in established mills to replace old equipment, which does not show in the reports of mill construction.

COMPARISON OF NEW MILL CONSTRUCTION OF
LAST TEN YEARS.

	1921	1920	1919	1918	1917	1916
Cotton.....	46	89	74	29	52	51
Wool.....	36	30	54	24	24	23
Knitting.....	103	59	84	120	97	113
Silk.....	31	71	61	49	86	60
Miscellaneous.....	26	15	16	27	38	33
	242	264	289	249	297	280

	1915	1914	1913	1912
Cotton.....	24	26	27	37
Wool.....	19	21	24	24
Knitting.....	111	110	142	122
Silk.....	25	51	54	46
Miscellaneous.....	40	37	80	36
	212	245	277	265

As appears from the accompanying tabulation the number of new manufacturing units added to the textile industry at large during 1921 was in excess of 240. In wool goods mills, knitting plants and miscellaneous concerns, the last made up largely of dyeing and finishing works, the projects undertaken outnumbered those recorded during 1920. In cotton and silk mills the figures for 1921 show a falling off. The products of the knitting trade, particularly hosiery, jersey cloth and various forms of knitted outerwear, were in generous demand and the expansion of this branch of the industry seemed to have been a direct answer to the call made upon it.

When grouping the mill construction in accordance with the various sections of the country,

the *Textile World* makes the comment that the New England States showed the greatest fresh development of the wool goods industry, the Southern States the greatest expansion of the cotton goods industry, the middle Atlantic States (covering chiefly New York, New Jersey, and Pennsylvania) the greatest growth in new knit, silk, and miscellaneous mills.

Another feature of the year was the development of chains of mills in the knitting field. In the silk industry the branch mill idea has continued to grow, as was evidenced by the development of the industry in parts of Pennsylvania. Shortage of labor in some of the older and more intensively developed industrial centres led manufacturers to new fields for the extension of their businesses. This fact was shown in the knit underwear trade in upper New York State. A number of these mills established branches in towns adjacent to the parent plants. In several of these finishing only was undertaken.

On the artificial silk end of the industry there was building activity as follows: American Cellulose & Chemical Manufacturing Company, Cumberland, Md.; du Pont Fibersilk Company, Buffalo, N. Y.; Cellulose Company, Chester, Pa.; and new units of the Viscose Co. at Lewiston, Pa., and Roanoke, Va.

The general classification of miscellaneous mills includes a few flax, hemp, and asbestos concerns, but covers for the most part dyeing and finishing companies. The greatest number of new plants of this latter class are to be found in Pennsylvania.

The *Textile World* also called attention to the fact that during the year there were a number of notable mill amalgamations. The Standard-Coosa-Thatcher Co., was formed late in the year, bringing into one organization three companies already allied in management. These were the Standard Processing Company and the Thatcher Spinning Company, Inc., Chattanooga, Tenn., and the Coosa Manufacturing Company, Piedmont, Ala. The formation of the Corticelli Silk Company marked the amalgamation of the Brainerd & Armstrong Co., New London, Conn., and the Nonotuck Silk Company, Northampton, Mass.

The merger of two prominent hosiery concerns, the Scott-Kitsmiller Co., Inc., and Wm. F. Taubel, Inc., brought into being the Taubel-Scott-Kitsmiller Co., with a capital of \$9,000,000. At the time of the merger this brought under one management twenty-nine hosiery mills. The number has since been increased by the erection of additional branch plants. Another amalgamation in the knitting fields was that of the Mayor Mills of Winston-Salem, N. C., and the Washington Mills, under the name Washington Mills.

IMPORTS AND EXPORTS. It is necessary in considering the imports and exports during the year 1921 and comparing them with earlier years to bear in mind that the values had changed materially and that quantities rather than total values formed a more satisfactory basis of comparison. This is illustrated by the statement that in 1921 imports of cotton manufactures decreased 37.8 per cent in 1921 in value, yet quantity of cloths expressed in square yards fell off only 24.4 per cent. On the other hand, imports of laces and embroideries, expressed in yards, increased 28.6 per cent, and the quantity of gloves and stockings in dozen pairs increased 266.5 per cent.

The statistics as published show that the total imports of woolen manufactures decreased 11.8 per cent, while the quantity of cloths and dress goods expressed in square yards decreased almost the same amount, or 12 per cent. On the other hand, there was an increase in pounds of yarn imported of 59 per cent, while the quantity of tops imported showed the enormous increase of 1179 per cent.

As still further bringing out this point reference may be made to the fact that the total value of cotton manufactures exported from the United States during 1921 decreased 70 per cent, but the decrease in yards of cloths exported was only 32 per cent, and in pounds of yarn exported 40.6 per cent. The decrease in total exports of wool manufactures during the year was 77.7 per cent, while cloths and dress goods in yards decreased 72 per cent.

THACH, C. C. See NECROLOGY.

THAYER, ABBOTT HANDERSON. American figure, landscape, and portrait painter, died at Dublin, N. H., May 29. He was born at Boston, Mass., August 12, 1849; and studied art in Paris, mainly under Gerome. He was celebrated for his ideal figure composition, his favorite subject being a young female figure. Good examples of his work are: "A Young Woman" in the Metropolitan Museum; "Caritas" in the Boston Museum; "Winged Figure" in the Albright Art Gallery of Buffalo; and "A Virgin" in the National Gallery at Washington. He was one of the early contributors to the knowledge of protective coloration of animals.

THEOSOPHICAL SOCIETY. This society was founded in 1875 by Madam H. P. Blavatsky and Colonel H. S. Olcott, in New York City to form a nucleus of the Universal Brotherhood of Humanity without distinction of race, creed, sex, caste, or color. Later world headquarters were established at Adyar, Madras, India. It is a world-wide organization and presents a synthesis of the underlying principles of all religions. Its purpose is to encourage a study of comparative religion, philosophy, and science and to investigate unexplained laws of nature and of powers latent in man. It endeavors to explain the origin, the evolution, and the destiny of the human race. Works by its authors may be found under the names of H. P. Blavatsky, Anne Besant, C. W. Leadbeater, C. Jinarajadasa, A. P. Sinnett, I. S. Cooper, and L. W. Rogers. In 1921 the society had in the United States a total of 212 lodges with an active membership of 7651. Officers are: International President, Anne Besant; National President, Mrs. L. W. Rogers; Secretary, Mrs. Betsey Jewett. H. Pearl Martin is National Secretary. Headquarters for the American Section of the Theosophical Society are at 645 Wrightwood Avenue, Chicago, Ill.

THOMA, LUDWIG. See NECROLOGY.

THOMAS, EARL DENISON. Army officer, died, February 17. He was born at McHenry, Ill., Jan. 4, 1847; graduated at the United States Military Academy in 1869, having already served in the Civil War, first as private and later as sergeant-major of the Eighth Illinois cavalry. After graduating from West Point he rose through the successive grades to the rank of brigadier-general, April 18, 1907, and retired, Jan. 4, 1911. He was brevetted for gallantry in Indian fights in Nebraska and Arizona. He served in Porto Rico, the

Philippine Islands, and Cuba during the Spanish-American war, and was in charge of the province of Pinar del Rio, Cuba, from 1906 to 1907, in command of the department of Colorado from 1907 to 1911, and in charge of operations during the troubles on the border of Arizona and New Mexico in 1910.

THOMPSON, GEORGE WALLACE. Judge, died, February 6. He was born at St. Mary's, Ont., August 9, 1850; and graduated at Toronto University in 1870. He came to the United States, and was admitted to the Iowa bar in 1875, but removed to Galesboro, Ill., in 1877. In 1897 he was made judge of the circuit court in the ninth circuit of Illinois, and was judge of the appellate court from 1916 to 1918.

THURINGIA. A federal state created under the new German Republic at the beginning of 1920, including the following divisions: Saxe-Weimar-Eisenach, Saxe-Meiningen, Saxe-Altenburg, Gotha, Reuss, Schwarzburg-Sondershausen, and Schwarzburg-Rudolstadt. Area, 4546 square miles; population, Oct. 8, 1919, 1,511,876. Capital, Weimar, with a population in 1919 of 37,237. Other cities: Gera, 73,641; Gotha, 41,465; Jena, 48,504; Eisenach, 39,229. The constitution was under consideration in 1920 and adopted March 11, 1921. President of the State Council in 1921, Dr. A. Paulsen.

TIBET. An extensive region forming a dependency of China, reaching from the Pamirs to the east between the Himalayas and Kwen-lun mountains to the frontiers of China. Area, estimated at 463,200 square miles; estimates of population vary from 1,500,000 to 6,000,000, a probable estimate being about 2,000,000. Capital, Lhasa, with a population of from 15,000 to 20,000. Agriculture is carried on in certain parts, but the methods are primitive and a large part of the country is in the pastoral stage. The industries of wool-spinning, weaving, and knitting are important. Among the minerals worked are gold, borax, and salt. Trade is chiefly with India and China. In 1919-20 imports from India were, £214,000; exports to India, £438,000.

TIMBER. See FORESTRY.

TIN. Inasmuch as the greater part of the world's tin supply comes from the far east it is inevitable that its production and marketing should be attended by various international as well as local influences, of which exchange is not the least. In 1921 there was not the wild and exciting market of the previous year, but there were wide fluctuations as appear in the accompanying table, the high price being in January and the low of the year being reached on March 9, in London, and on August 25 in New York. One reason for the decline during the year was that the government of the Straits Settlements had fixed a price of £229 f.o.b. Singapore at which it would maintain the value. This "pegging" process, however, did not avail and as the price fell the government withdrew its support so that the market receded to its low point in March. The attempt to maintain the price of tin artificially was in large measure due to the desire to keep the mines busy and especially the imported coolie labor at work, as shutting down, it was feared, would lead to starvation and riots which in a country sparsely settled and not well policed would have threatened serious consequences. Furthermore, it was feared that shutting down the mines

would lead to the ruin of the industry beyond its immediate recovery. However, the government of the Federated Malay States accumulated about 10,000 tons of tin, issuing some \$10,000,000 in bonds against it, and the carrying of the metal was a serious undertaking for the colony which was suffering a general depression in 1921. The same general policy prevailed in the Dutch East Indies and here some 5000 or 6000 tons were held in Java awaiting liquidation. The island of Banca had produced up to the end of September 1000 tons more than in 1920, but the shipments were 3000 tons less. In Hong Kong there was said to be in warehouses 4000 tons at the end of the year. In Bolivia production decreased and the shipments to the U. S. for the year would only amount to about 15,000 tons instead of the usual 30,000 tons or thereabouts.

farm value of the 1921 crop on this basis was considerably less than half that of 1919—\$207,570,000, as compared with \$570,868,000 in 1919. Kentucky continued to be the largest producer, followed by North Carolina, Virginia, and Tennessee.

The 1920 internal revenue receipts from tobacco were the largest ever collected—\$295,809,355.44. The receipts from all tobacco taxes during the fiscal year 1921 were \$255,219,385.49, a decrease of \$40,589,969.95, or 13.72 per cent compared with 1920. These receipts represented 5.5 per cent of the total internal revenue receipts from all sources, or approximately the same as in 1920. The greatest decrease in receipts was on account of manufactured chewing and smoking tobacco, snuff, cigarettes, and large cigars. Of the total taxes collected 53 per cent was from cigarettes, 23 per

MONTHLY AVERAGE PRICES OF TIN

(From *Engineering & Mining Journal*)

Month	New York		Straits		London	
	99%					
	1920	1921	1920	1921	1920	1921
January.....	61.596	31.470	(¹)	36.000	376.512	199.464
February.....	58.466	28.534	59.932	32.142	395.750	166.250
March.....	61.037	27.296	61.926	28.806	369.489	156.024
April.....	61.120	28.990	62.115	30.404	345.450	163.905
May.....	53.230	31.431	55.100	32.500	294.813	177.411
June.....	46.125	28.514	48.327	29.423	250.614	167.506
July.....	45.798	26.755	49.154	27.655	261.886	164.530
August.....	43.856	25.662	47.620	26.301	274.048	155.318
September.....	41.940	26.280	44.465	26.680	270.120	156.750
October.....	39.310	27.278	40.555	27.655	258.190	156.380
November.....	35.667	28.592	36.854	28.935	241.080	158.898
December.....	31.135	32.106	34.058	32.486	212.440	169.738
Year.....	48.273	28.576	49.101	29.916	295.866	165.265

¹ No average computed.

New York in cents per pound; London in pounds sterling per long ton.

SUPPLIES, DELIVERIES AND STOCKS OF TIN AT THE BEGINNING AND END OF EACH YEAR 1918-21 IN TONS OF 2,240 POUNDS.

From *Engineering and Mining Journal*

	1921	1920	1919	1918
Visible supply Jan. 1.....	18,439	21,320	7,787	11,668
Supply				
Straits.....	36,107	45,431	51,045	62,467
Australian.....	1,175	3,000	2,600	3,300
Banca and Billiton.....	11,874	14,762	13,801	17,142
Standard.....	10,537	14,336	8,536	.....
Total supplies.....	59,693	77,529	75,982	82,909
Total available.....	78,132	98,849	83,769	94,577
Deliveries				
Europe.....	28,394	27,191	29,445	40,540
United States.....	25,678	53,219	33,004	39,466
Total deliveries.....	54,072	80,410	62,449	80,006
Visible supply Dec. 31.....	24,060	18,439	21,320	14,571

TIROL. An Alpine region which before the downfall of the Austro-Hungarian monarchy was a crownland of Austria. Area, 10,302 square miles; population, Dec. 31, 1920, 946,613. The northern portion was included in the new Austrian republic. Area, 4782 square miles; and population in 1920, 306,485.

TOBACCO. The acreage reported in 1921 was nearly a half million acres less than in the two preceding years. The yield was smaller than in 1920, and this with the diminished acreage brought the estimated production down to 1,117,682,000 lbs. This compares with 1,582,225,000 lbs. in 1920, and 1,465,481,000 lbs. in 1919. The average net price per pound has declined from 39 c. in 1919 and 21.2 c. in 1920, to 18.6 c. in 1921. The total

cent from manufactured smoking and chewing tobacco, 20 per cent from cigars, and 2 per cent from snuff. The receipts per capita from this source in 1921 were \$2.36, compared with \$2.78 in 1920, \$1.93 in 1919, and \$1.48 in 1918, previous to which the receipts were less than one dollar per capita.

The Kentucky Experiment Station reported (Bul. 329) studies of the cost of tobacco production in the Burley and dark tobacco areas of the State. In the Burley districts the cost per pound varied from 15 c. to 81 c., averaging about 28 c., and with 90 per cent grown at 31 c. or less. In the dark district the cost per pound varied from 9 c. to 38 c., averaging 17.2 c. and with over 90 per cent produced at 23 c. or less. The man labor constituted 40 to 50 per cent of the cost.

TOBACCO DISEASES. See BOTANY.**TOBAGO.** See TRINIDAD AND TOBAGO.

TOGO. Formerly a German colony in West Africa, constituting a protectorate and situated on the coast between Dahomey and the Gold Coast; after the war divided administratively between France and Great Britain. Total area, 33,659 square miles; colored population (1913), 1,031,978; European population, estimated in 1918 at 110. The eastern part allotted to France has an area of 21,893 square miles; the British part, making up about one-third of the territory, borders the Gold Coast. The soil is fertile. The chief products that enter into the export trade are: Copra, cocoa, and palm oil. It is populated chiefly by negroes of the Ewe race. In 1919

France had 21.3 per cent, and England, 64.7 per cent of the foreign trade. No later figures for trade were available than those given in the preceding YEAR BOOK. Rich mineral resources have been reported, especially iron ore. The coast line is 434 miles, all of which is contained in the French portion. British Togoland has an area of about 12,500 square miles. There are considerable plantations of coffee, cocoa, kola, and palms; and the cultivation of cotton has been attempted. Native industries include weaving, pottery, straw plaiting, etc. The foreign trade in 1919 was as follows: Imports, £665,332; exports, £850,744. Administrator of British Togoland at the beginning of 1921, Major F. W. F. Jackson; Commissioner of French Togoland, M. Woelfel.

TOLEDO, UNIVERSITY OF. An institution of the higher learning at Toledo, Ohio; founded in 1872. The enrollment for the fall of 1921 was 1502 and for the summer session, 163. There were 32 full time members in the faculty and 23 part time members. The productive funds amounted to \$175,000. The library contained 11,000 volumes. A new Science Building was completed at a cost of \$310,000. President, Dr. A. M. Stowe.

TONGA or the FRIENDLY ISLANDS. Three groups of islands together with small outlying islands in the Pacific ocean between 15° and 23° 30' S. latitude and 173° and 177° W. longitude, lying to the east of Fiji; constituted a British protectorate, May 19, 1900. Total area, about 385 square miles; population, estimated in 1919 at 23,562, of whom 22,689 were Tongans and 380 Europeans. The natives have been Christianized, and the Free Church of Tonga has about 16,000 members, the rest being divided between the Wesleyan Methodists and the Roman Catholics. In 1919 there were 64 public primary schools, with 2742 pupils enrolled. Copra is almost the exclusive commercial product. The authority of the king and native chiefs was respected by the British, and the ruling queen at the beginning of 1921 was Solate, who succeeded, April 29, 1918. British High Commissioner in 1921, Cecil Hunter Rodwell.

TONGKING. A French protectorate in Indo-China, acquired in 1884, and comprising the northern, main division of the colony of French Indo-China, south of the Chinese provinces of Kwansi and Yunnan. Capital, Hanoi, which is also the capital of French Indo-China. The population in 1919 was given at 6,470,250, of whom 6875 were Europeans (exclusive of the military); the population of Hanoi was 109,500. The chief product is rice of which the crop in 1919 was 186,685 tons, valued at 117,045,000 francs. Vessels entered and cleared in 1919 were 588 of 711,961 tons.

TORONTO, ONT. See MUNICIPAL GOVERNMENT.

TORONTO, UNIVERSITY OF. A Canadian institution of the higher learning at Toronto, Canada; supported by the provincial government; founded in 1827. The enrollment for the fall of 1921 was as follows: Arts, 2376; Graduate, 185; Medicine, 1069; Applied Science, 800; Education, 143; Forestry, 62; Music, 21; Social Service, 289; Public Health Nursing, 41; total, 4986. There were 559 members in the faculty. The library contained 168,418 volumes. The income for the session of 1920-21 amounted to \$2,202,202. President, Sir Robert Falconer, K. C. M. G., JLL.D.

TORPEDO BOATS. See BATTLESHIPS AND OTHER WAR VESSELS.

TOSCANINI, ARTURO. See MUSIC, *Orchestras*.

TOTE STADT, DIE. See MUSIC, *Opera*.

TOWNSEND, JAMES BLISS. Editor and art critic, died, March 10. He was born in New York City, Sept. 30, 1855, graduated at Princeton in 1878 and joined the editorial staff of the New York *Tribune* in that year. He was art editor of the New York *World*, 1881-87; art critic of the New York *Times*, 1894-1900, and art writer on the *Herald*, 1902-07. He was also prominent in politics and took an active part in the New York State campaigns, 1892 and 1896. He was art director of the Charleston Exposition, 1901-02. He wrote *Random Fancies; Sonnets and Translations* (1901) besides his voluminous contributions to the periodical press.

TRABERT, WILHELM. See NECROLOGY.

TRACK AND FIELD ATHLETICS. See ATHLETICS.

TRADE UNIONS. The International Labor Office at Geneva issued a table illustrating by statistics the growth of trade unionism in the different countries of the world during the decade ending in 1919. From this and the *Labor Review* the following facts are compiled. The table covers all the important countries of the world with the exception of Russia, for which no figures are available, and China, Japan, and India, where trade unionism is little developed. But it should be borne in mind that the definition of a trade union differs from country to country, and associations which in one country are termed trade unions are not so termed in another country. Where it has been possible the membership for 1920 and 1921 has been added to the table; numbers are given in thousands.

Country	1910	1918	1919	1920	1921
Australia.....	302	582	628		
Austria.....	200	295	772		
Belgium.....	139	450	750	877	
Canada.....	120	249	378		
Czecho-Slovakia.....	100	161	657	742	
Denmark.....	124	316	360		
Finland.....	15	21	41		
France.....	977	2,000	2,500		
Germany.....	2,960	3,801	9,000		9,700
Great Britain.....	2,400	6,645	8,024		
Hungary.....	86	500	500		
Italy.....	817	(¹)	1,800		
Netherlands.....	164	456	625		
New Zealand.....	57	(¹)	100		
Norway.....	47	180	144		
Roumania.....	8	(¹)	(¹)		
Serbia (Jugo-Slavia).....	7	15	20		
Spain.....	41	150	211		
Sweden.....	115	302	339		
Switzerland.....	75	177	224		
United States of America	2,100	4,000	5,607		

¹ Figures not available.

From this table it will be seen that the trade-union membership in the 20 countries at the end of 1919 was three times as large as that at the end of 1910. A small part of the increase is due to the greater completeness of the returns and another small part (probably about 10 per cent) to the natural growth of population, but even allowing for these two factors there has been an enormous growth in trade unionism among the workers. The growth is common to all countries.

Of the total membership of 32,680,000 in 1919, it is interesting to note that for 5 of the 20 countries included, namely, Great Britain, Germany,

the United States, France, and Italy, the total trade-union membership amounted to nearly 27 million, leaving about 5½ million for the remaining 15 countries.

UNITED STATES. During the year there was a widespread movement among employers for the open shop. The following summary of the situation is taken from the *Political Science Quarterly*:

Ever since prices began to decline in the summer of 1920, and it appeared that a period of depression was at hand, groups of employers have been conducting a campaign for the "open shop." The National Conference of State Manufacturers held in Chicago in January adopted a resolution stating that it is "fundamental in this country that all law-abiding citizens or residents thereof have the right to work when they please, for whom they please, and on whatever terms are mutually agreed upon between employee and employer, and without interference or discrimination on the part of others." Labor leaders have claimed that the open-shop propaganda was in reality an attempt of reactionary employers to rid themselves of the necessity of having dealings with organized labor and that instead of favoring a shop in which there is no discrimination against union or non-union men they were actually seeking to establish a system under which only non-union men could find employment. At a conference of the leaders of more than one hundred international unions held in Washington in February the following resolution was adopted: "Reactionary employers have joined their might in a campaign which they are pleased to call a campaign for the 'open shop' which they have been waging vigorously since the signing of the Armistice. Compelled by pressure of public opinion to accept labor's coöperation during the war when the utmost conservation of productive energy was necessary to the life of the nation, they cast off all pretense immediately upon the passing of the emergency. This entire campaign on the part of the combined reactionary employers is in no sense a campaign for the 'open shop.' No matter what definition may be given to that term, the campaign is distinctly and solely one for a shop that shall be closed against union workmen. It is primarily a campaign disguised under the name of an 'open shop' campaign designed to destroy trade unions and to break down and eliminate the whole principle of collective bargaining which has for years been accepted by the highest industrial authorities and by the American people as a principle based upon justice and established permanently in our industrial life."

For further information on the trade union movement in the U. S. see **LABOR, AMERICAN FEDERATION OF.**

FOREIGN. Four international trades-union congresses were reported for the year. 1. The ninth international congress of the metal workers' federation was held at Lucerne, Switzerland, August 8-14. There were 62 delegates present representing 15 nations and approximately 3,280,000 workers. 2. The international federation of non-manual workers met in Vienna, August 10-12, with delegates from 11 European countries present. 3. The international congress of intellectual workers met in Brussels on August 20. 4. The national federations affiliated to the International Secretariat of Stone Workers held their first international congress since 1913 at Innsbruck, August 21-23, with 8 countries represented.

BELGIUM. A great victory for the Belgian working class took place in the Spring of 1921 when article 310 of the Belgian Penal Code was rescinded; this article had long been a serious obstacle in the development of trade association and in the effective use of the strike.

GREAT BRITAIN. The 53d Annual Trades-Union Congress of the United Kingdom was held at Cardiff, September 5 to 10, with 823 delegates present representing 6,389,123 members, a decrease of more than 100,000 from the membership represented at the 1920 congress. The main subject for discussion was the question of unemployment, and a composite resolution embodying

the main points of the many resolutions on the agenda was carried unanimously. On the ground that it is the duty of the State to provide work or adequate maintenance for every willing worker, the resolution asked that Parliament should immediately be summoned to introduce schemes of work and to remove the inequalities of rating in the London area. Coöperation of the new general council with the political side of the labor movement in order to secure these objects was ordered by the resolution. A resolution indorsing the coming Washington conference on the limitation of armaments was passed. The congress also expressed sympathy with the Russian people, and the general council was authorized "to use the whole power of organized British labor" to prevail upon the Government to furnish them with medical supplies, raw materials, and money credits.

TRANSVAAL. See **SOUTH AFRICA, UNION OF.**
TRANSYLVANIA. A part of the crownland of Hungary until the closing months of 1918 when it was taken over by Roumania; formally annexed by royal decree, Jan. 11, 1919, Roumanian possession being recognised by the Treaty of Versailles. Area, 22,312 square miles; population, Dec. 31, 1910, 2,673,367. At the beginning of 1921 Transylvania was represented by 45 senators in the Roumanian upper house and 112 deputies in the lower house.

TRAVEL. See **LITERATURE, ENGLISH AND AMERICAN.**

TREDWELL, DANIEL M. Lawyer and business man, died at Brooklyn, N. Y., November 10. He was one of the oldest of Brooklyn's well-known business men. He was born at Hempstead, L. I., July 26, 1826, graduated at the Columbia Law School in 1851 and after reporting for a newspaper for a short time was connected with the office of clerk of the Supreme Court of New York and continued in that capacity until 1894. During the last ten years of his life, he was an active officer of the Home Title Insurance Company of Brooklyn, and at one time he was President of the United States Title Company. He was a member of various learned societies and a prominent Free Mason. Among his writings may be mentioned *Literature of the Civil War*; *Nomads of the Sea*; volumes of reminiscences and history pertaining to Long Island and various works of a scientific character.

TRICHINIASIS. The disease caused by the pork worm was once believed to be very rare and practically fatal after long invalidism. At present we know that this applies only to very severe forms of the disease for the latter is so common that about 1 per cent of all human bodies show evidences of the pork worm, usually very slight. About 2 per cent of all hogs are trichinous and attempts of the Federal Bureau of Animal Industry to inspect all killed hogs were abandoned many years ago. At present it violates the provisions of interstate commerce to distribute ready-to-eat food articles which contain raw pork. In addition state and municipal governments seek to proceed along federal lines in protecting the public. The latter are repeatedly warned to eat no raw pork, and medical men are compelled to report all new cases of trichiniasis. In New York City raw pork is eaten rather freely as pork roll in the winter and in warm weather as summer sausage; while raw smoked pork is consumed as ham. As

already implied the average case of infection is mild and easily overlooked, while the more severe cases simulate other diseases as rheumatism and even typhoid fever, or ordinary diarrhea. A case of the disease was reported in Brooklyn last November (*Weekly Bulletin of the Department of Health*, for Dec. 31, 1921). The patient was a woman of 45 who showed the full picture of the severe form of the disease. She had eaten some suspicious bologna sausage. No other case has been reported and examination of specimens of the sausage failed to discover pork worms. The pork came from a meat plant which has regular Federal inspection.

TRIESTE. Before the disruption of the Austro-Hungarian empire a crownland of Austria, consisting of the Mediterranean port of Trieste and surrounding region; occupied by Italy after the war and retained by her in accordance with the peace settlement. The population in 1919 was estimated at 190,013.

TRINIDAD AND TOBAGO. A British colony in the West Indies, consisting of the island of Trinidad, with an area of 1860 square miles, lying immediately north of the mouth of the Orinoco river; and the island of Tobago, with an area of 114 square miles. Total population, estimated, Dec. 31, 1919, 386,907. Capital, Port of Spain, with a population of 69,796. Most of the inhabitants are West Indians of African descent, the rest being East Indians, whose number was estimated at 129,300, and a few Chinese. The whites are English, Spanish, French, and Portuguese. In 1919 there were 219 elementary schools with 48,481 pupils enrolled. Of the total area, 377,400 acres were under cultivation in 1919. One of the noted features of Trinidad is the large asphalt lake. The revenue from asphalt in 1919 was \$29,791. There is a considerable output of petroleum. No latter figures for commerce were available than those given in the preceding YEAR BOOK for 1919 when the chief exports were, in order of value: Cocoa, sugar, coconuts, petroleum fuel, and crude petroleum. The share of the United States in the foreign trade considerably exceeded that of any other country. One of the chief commercial developments of recent years has been the increase of petroleum production which has far outstripped that of asphalt. The budget for 1919 was as follows: Revenue, £1,342,884; expenditure, £1,309,407. The railway on the island of Trinidad has a length of 124 miles. Vessels entered and cleared in 1919 numbered 4216 of 2,255,793 tons, of which 1,522,723 were British. In Tobago latterly there has been a development of the rubber, cotton, tobacco, and cacao industries. Governor at the beginning of 1921, Lieutenant-Colonel Sir J. R. Chancellor.

TRINITY COLLEGE. An institution for the education of men at Hartford, Conn.; founded in 1845. The enrollment for the fall of 1921 was 255. There were 25 active members in the faculty, 2 on leave, and 4 new. The productive funds amounted to \$1,750,000 and the income to \$130,000. The library contained 85,000 volumes. The Chemical Laboratory was rebuilt. President, Remsen Brinckerhoff Ogilby.

TRIPOLI. See LIBYA.

TRØLS-LUND, TRØLS FREDERIK. Danish historian, died, February 12. He was born at Copenhagen in 1840; and graduated at the University of Copenhagen in 1871. He was professor

at the military school at Frederiksborg from 1874 to 1900. Among his publications is a valuable work on Scandinavian history in fourteen volumes (1879-1901) which dealt with the history of Denmark and Norway at the end of the sixteenth century. His other writings also deal with various periods or aspects of Scandinavian history, and they are all marked by extraordinary vigor of style. In recognition of his gifts as an historian, he received one-quarter of the Nobel Prize in literature for 1915.

TROTTLING. See RACING.

TUBERCULOSIS. The plan for feeding the victim of pulmonary tuberculosis has recently been considerably modified. The forced feeding of some years ago through which a patient was forced to consume as high as 7000 food units daily has been largely abandoned and 3000 units is not exceeded, which amount in itself is sufficient to nourish a healthy man doing a moderate amount of work. To be more exact, 50 calories for every kilogramme of body weight is the standard—thus if a young woman who is tuberculous weighs 120 lbs. or 54 1-2 kilos her daily diet should comprise 2745 food units. Some physicians have maintained the weights of the patients and have even seen them gain on a much smaller allowance, even as low as 35 units per kilogramme. For many years it has been the custom to allow these patients more animal food than is required by the healthy, and especially have they been urged to take fatty foods. At present the bulk of the ration is starchy food, and both albumin and fat are given in relatively small quantities. The proportions are about as follows: albumin, 100 gms.; fat, 80 gms. and starches or sugars, 500 gms. We have learned that with albumin quality and not quantity counts. The choice of animal foods favors those which contain certain components necessary to the welfare of the organism to maintain growth and repair and furnish certain secretions. Gelatine fails to nourish alone because it contains no tyrosine nor tryptophan, but if combined with an albuminous substance which does contain them it can serve as nutritious food. Among the starchy foods necessary are green vegetables which contain mineral matter and vitamins. Fats are useful largely because they contain certain vitamins. Generally speaking all foods should when possible be fresh and uncooked—this is readily possible with milk and butter, eggs, fruits, etc. Meat is often given uncooked or underdone. At present water is the only liquid recommended for beverage purposes. Cawadias of Athens in *La Presse Médicale* for Nov. 26, 1921. See VETERINARY MEDICINE.

TUCKER, JOHN FRANCIS. Lawyer and author, died, February 28. He was Governor of the Society of Arts and Sciences. He was born in New York City, Feb. 25, 1871, was educated in the public schools and graduated at the New York University Law School in 1893. After a post-graduate course at the University of Pennsylvania and travels in Europe he was admitted to the New York bar in 1894. In 1895-98 he was editor of the *University Law Review* having previously been associated with the late Austin Abbott in editorial work. He wrote *The Story of Washington Square* (1895); *The Power Political* (1899); *Collected Short Stories* (1905); and a play produced in London in 1899 entitled *Husbands by Purchase*.

TUFTS COLLEGE. A Universalist co-educational institution at Tufts College, Mass.; founded in 1885. The enrollment for the fall of 1921 was as follows: School of Liberal Arts, 260; Jackson College for Women, 180; Engineering School, 345; Bromfield-Pearson School, 17; Crane Theological School, 17; Graduate School, 21; Two-year and one-year pre-dental course, 375; Medical School, 448; Dental School, 436; total, not including duplicates, 2092. There were 371 members in the faculty. The endowment was \$3,500,000. Important gifts amounted to \$250,000. The library contained 83,858. President, John Albert Cousens, A.B.

TULANE UNIVERSITY OF LOUISIANA. A co-educational State institution of the higher learning at New Orleans, La.; founded in 1834. The enrollment for the fall of 1921 was as follows: College of Arts and Sciences, 325; College of Engineering, 213; H. Sophie Newcomb College, 588; Faculty of Graduate studies, 50; College of Law, 81; School of Medicine, 344; Graduate School of Medicine, 52; School of Dentistry, 167; School of Pharmacy, 69; College of Commerce, 453; Courses for Teachers, 152; Correspondence Courses, 4; total, not including duplicates, 2405. The enrollment for the summer schools was 1474. The faculty numbered 368. Total endowment amounted to \$6,368,817 and the income to \$691,121. President, A. B. Dinwiddie, LL.D.

TUNIS. A French protectorate on the Mediterranean coast east of Algeria, known as the Regency of Tunis; bounded on the south by the Desert of Sahara. Capital, Tunis. Area, estimated at from 50,000 to 64,600 square miles; population, estimated in 1920 at about 1,940,000, an uncertain estimate, however, unchanged since 1914, for no proper census had been taken for the Moslems and Jews. The majority of the inhabitants are Bedouin Arabs and Kabyles (estimated at 1,739,744 in 1919). The European population in 1921 was as follows: French, 54,477; Italians, 84,819; Maltese, 13,509. The French had increased since the last census (1911) by 8433. The city of Tunis had a population of 67,129 Moslems, 44,237 Italians, 26,491 Jews, 17,875 French, and 5986 Maltese. The majority of the people are Mohammedans. The Roman Catholics were estimated at about 35,000. According to the latest available figures for education there were about 313 public schools, 8 lycées, and 27 schools, with about 42,497 pupils, of whom 10,302 were French; 11,552, Mohammedans; 9249 Jews; 9133 Italians. A feature of the educational system that was causing some concern in 1921 was the comparatively small number of French teachers on the staffs of the schools. In that year no Frenchmen competed for the positions of teachers, all the places being applied for by natives. The chief sources of wealth are agriculture and mining, but latterly foreign trade has become increasingly important under French direction. The chief agricultural products are: Wheat, barley, and other cereals; olives, grapes, dates, and other fruits; palm products; and wine and olive oil. No later figures for these crops were available than those given in the preceding YEAR BOOK. Most of the cultivable land is held in large estates. Production of the mines has steadily increased in recent years. The output of the chief minerals worked in 1919 was as

follows: Iron, 360,453 tons; phosphate of lime, 815,385 tons; lead, 13,455 tons; zinc, 6185 tons; manganese, 1313, tons. Native industries include wool weaving, carpet weaving, saddle making, spinning, etc.

In 1919 the vessels entered numbered 8615 of 1,614,355 tons; cleared, 8471 of 1,587,977 tons. The railway mileage, Jan. 1, 1920, was 1044. Bey of Tunis at the beginning of 1921, Sidi Mohammed, who succeeded, May 12, 1906; French Resident General, Lucien Saint.

HISTORY. On November 8, a decree was issued in regard to the naturalization of foreigners in Tunis. This provided that every one born in the country of whom one of the parents was born there should be accounted a French national. In 1896 the privilege of indefinitely retaining their own nationality was guaranteed to the Italians who settled in Tunis. This arrangement was terminated in 1919 by the French government, but on the condition that its effects should remain until it was replaced by another arrangement, and this status was regularly renewed for periods of three months. The decree of November 8 did not apply to the Italians privileged under this arrangement of 1896 thus prolonged. But in the latter part of the year the Italian press attacked the new decree which they characterized as conceived in a hostile spirit. They argued that France did not have the right to regard the Italians of Tunis as ordinary colonists since they had arrived in the country before the French control was established. To this the French replied that while there might have been Italian immigration before the French protectorate was set up, their prosperity and increase were due exclusively to that protectorate. The French admitted that Italian manual labor had largely contributed to the economic progress of Tunis, but they would not admit that the overflow of the Italian population into a French protectorate constituted any definite claim on the French government. The Italians had come there because French capital had built railways and roads, and had provided the means for their profitable employment. The subject was of some importance in connection with the movement in certain industrial quarters in France and in Italy for enlarging the scope of the agreement between the two governments in respect to the phosphates of Tunis. The principle of the agreement proposed was that in return for a certain proportion of Italian manual labor a certain percentage of production was reserved to Italy. In 1918 the Italian government had demanded more than that, claiming a right of joint ownership in those enterprises to which Italian manual labor had contributed. This principle had been rejected by France.

TUNNELS. In 1921 the limited amount of new railway construction and improvement of the right-of-way rather restricted tunnel construction. The same held true also for Urban and interurban railways, while the number of new aqueducts was also small including, however, the Shandaken tunnel of the New York water supply in the Catskill region and the Hetch Hetchy aqueduct of the San Francisco water supply. Naturally in the various schemes for the development of the Port of New York, about which there was so much controversy and discussion, tunnels figured; the plans of the Port Authority proposing

a tunnel from Greenville to Brooklyn while the plan of the Board of Estimate a tunnel from Staten Island to Bay Ridge under the Narrows. There was also the Hudson River Velicular Tunnel on which active work was largely held up by a disagreement in the joint commission.

VIRGINIAN RAILWAY TUNNEL IMPROVEMENT. An important feature of the double-tracking of the Elmore-Clark's Gap section was the widening of the tunnels, which by the end of 1921 was practically completed. The widening of the tunnels rather than the driving of new bores was determined by various considerations, especially the fact that in two instances the portals were approached by viaducts which could be strengthened rather than reconstructed. The work involved the widening of five tunnels whose length varied from 347 feet to 1252 feet, and had to be done without interrupting traffic. There was employed to protect roadbed and traffic a sectional shield which could be advanced as the work progressed. The old tunnels which were timber lined had a clear width inside of 18 feet and an overhead clearance of 21 feet 6 inches from the top of the rail, while the section enlarged to double-track size had a clear width on curves of 32 feet and on tangents of 30 feet 6 inches with an overhead clearance of about 24 feet from the top of the rail. The design of the widened tunnel was a three-centred arch of reinforced concrete with a minimum thickness of 2 feet 2 inches, backed up with a timber lining consisting of 12 x 12 inch posts supporting 12 x 12 inch ribs and inclosed by 3-inch lagging on the sides and 4-inch lagging over the top. The method followed was to mount a series of steel arches protecting the track for a distance of about 60 feet and then excavating a heading of the double track width which was driven through the entire length of the tunnel before the bench was removed. A two-foot section on one side of the old arch, approximately 18 feet on the second track side, and the enlarged section above, all were removed simultaneously. The tunnels were all lined with concrete reinforced with 7/8 inch rods placed both vertically and horizontally.

RECONSTRUCTION OF TEHACHAPI TUNNELS. The Southern Pacific R. R. during the year completed the enlarging and lining with concrete of the tunnels on its line over the Tehachapi mountains in California. The cost of this work, which had been in progress for some five years, was about \$1,000,000. This extensive undertaking was carried out without delay to trains, despite the fact that the 48 miles of track between Bakersfield and Tehachapi, was claimed by Southern Pacific officials, to be the busiest single-track line in the United States, serving, as it did, as a main trunk line for both the Southern Pacific and the Santa Fe systems. It had been the policy of the Southern Pacific to line with concrete as many as possible of its tunnels, especially those where there was no question as to permanence or location. In many cases enlargement was carried in on this connection and this was true of the eighteen tunnels on the Tehachapi grade, which before 1916 were all of small bore and were lined with timber, except for about 1000 ft. which were in solid rock. In the policy of repair and enlargement adopted concrete-lined tunnels with a minimum width of 16 ft. on tangent and 17 ft. on curves and an overhead clearance of 22 ft. were decided upon.

Two of the tunnels in this region were eliminated by relocation, as the change of line and excavation of open cuts was found more economical, and the others were enlarged and concreted to standard dimensions and type.

CONNAUGHT TUNNEL LINED. The five-mile tunnel of the Canadian Pacific Railway at Glacier, B. C., through the Selkirk Mountains, opened for traffic in December, 1916, was being completely lined with concrete during the year, the work being carried on without interference with traffic over the double-track line. An elaborate system of air compressor and mixers motor driven was arranged on two 75-ton flat cars which were coupled together so that one complete form, or 21 feet 6 inches of tunnel, could be blown without going outside for recharging. An elaborate power plant at the portal was connected by a transmission line and a 27-ton gasoline locomotive was used to move the plant cars in and out of the tunnel. The concrete was blown into collapsible forms in sections of 21 feet 6 inches so that this amount of tunnel could be completed at one setting, the rule being to finish one section each day. The forms were designed to clear all traffic.

ELK ROCK TUNNEL. The Southern Pacific Co. for its electrified suburban Newburg Branch south of Portland, Ore., decided to build a 1400 ft. single track tunnel through solid rock in order to secure increased safety and ease of operation, where the line followed around the base of the Cliff at Elk Rock on the west side of the Willamette river. Here there had been a trestle over 700 feet long and there was considerable danger from falling rock. A number of plans were considered including detours, a fill in the river, timber sheds, a three-span bridge, concreting the face of the cliff, etc., but the tunnel was adopted in preference on account of its low maintenance cost. The contract for this tunnel was let on a bid of \$228,000.

PITTSBURG TUNNEL. During the year the Liberty Tunnels forming a two-roadway street through the South Hills at Pittsburgh, Pa., were advancing at a rate of 10 feet per day or from 250 to 260 feet per month in each tube. These tunnels, described in the YEAR BOOK for 1920, were being constructed by full section face work and steam shovel mucking. The plan followed was to drill the face and blast out the rock in two sections, an upper or arch section, and a very short bench, about ten feet behind. As the material was blasted it was removed by a steam shovel. The timbering followed immediately in a single arch roof arrangement which was then lined with concrete, the lining being kept usually within 100 or 150 feet of the face.

SHANDAKEN TUNNEL. Active progress was made during the year in driving the 18-mile Shandaken Tunnel of the Catskill aqueduct, which was being built under the direction of the Board of Water Supply of the City of New York, to convey water from the Schoharie river underneath the intervening Catskill Hills into the Ashokan reservoir, within the Esopus watershed, whence it will pass with water from other sources through the Catskill aqueduct.

During the summer this work was progressing both north and south from six shafts, and in five of the twelve headings permanent roof support was required. During the month of August, it was stated 5030 lin. ft. of completed tunnel,

about 12 ft. wide and 14 ft. high, was excavated, the maximum progress being in the north heading at shaft 3, where 591 lin. ft. was excavated with two drilling and two mucking shifts. The excavation amounted to about 6 cu. yd. per linear foot of tunnel.

HETCH HETCHY TUNNEL. Progress was made during the year on the Hetch Hetchy tunnel of the San Francisco water supply system, and judging from the rate of advance it was estimated that the tunnel driving would be completed by March 1923, as on Nov. 1, 1921, a total of 45,073 feet had been driven, leaving approximately 50,000 feet more to be done. In October, 1921, a record was made when the 10 headings of the mountain division tunnels were driven a total of 4060 ft., which is the highest monthly progress yet made on the project. In the total of 679 shifts worked in October the average heading advance was 5.98 ft. The number of drill holes in each round varied from 25 in altered slate and schist to 50 in monolithic granite.

PROPOSED RULES FOR TUNNEL AND COMPRESSED AIR WORK. The Industrial Board of the New York State Department of Labor conducted hearings on proposed rules relating to tunnel construction and work in compressed air, at Buffalo, Rochester, Syracuse, and in New York City late in the year.

PROPOSED WORKING PERIODS IN COMPRESSED AIR IN NEW YORK

Air pressure, lb. per sq. in.	Total length of working period, hours	Number of periods in compressed air	Length of each period, hours	Rest interval between work periods, hours
0-21.....	8	2	...	$\frac{1}{2}$
21-30.....	6	2	3	1
30-35.....	4	2	2	2
35-40.....	3	2	$1\frac{1}{2}$	3
40-45.....	2	2	1	4
45-50.....	$1\frac{1}{2}$	2	$\frac{1}{2}$	5

The proposed hours of labor in compressed air are shown in the accompanying table, while other features of the rules relate to permissible periods of decompression, wash and rest rooms, sanitation and ventilation, medical attendance, and other subjects. Rules covering the transportation, storage, and use of explosives were proposed in considerable detail.

HUDSON RIVER VEHICLE TUNNEL. Disagreements between the New York and the New Jersey commissions, concerned with the construction of a vehicle tunnel under the Hudson river, resulted in a deadlock, so that little was accomplished during the year.

Both commissions approved an agreement with the Erie R. R. involving the site of the ventilating shafts on the Jersey side.

The bids for the construction of the Jersey shafts were rejected, and the plan was to include the Jersey shafts in the main tunnel contract. Furthermore, Clifford M. Holland, chief engineer, was authorized to have printed the contract and specifications for the under-river tunnel, the main portion of the project, so that the contract could be let in the following year.

Much of the trouble was due to the fact that the board of consulting engineers was summarily "dismissed" by the New Jersey commission, without the concurrence of the New York commission, and an appeal to the courts was to be

made by the "dismissed" engineers. The New Jersey Interstate Bridge and Tunnel Commission, at a meeting held November 29, authorized a bond issue of \$15,000,000 to cover expenditures during 1922 for the Hudson river vehicular tunnel and the Delaware river bridge at Camden. According to the estimates of Clifford M. Holland, chief engineer of the vehicular tunnel, that project would require \$12,793,000.

The commission also authorized the beginning of negotiations to acquire land on the Jersey side for the installation of the tunnel construction plant.

N. Y. HARBOR TUNNEL. To develop the plans evolved by the Board of Estimate of the City of New York for a projected freight and passenger tunnel under New York Harbor between Staten Island and Brooklyn, Jesse B. Snow was appointed as tunnel engineer at a salary of \$12,000 a year, Col. W. J. Wilgus and John F. Sullivan as consulting engineers, each at a salary of \$10,000 a year. Arthur S. Tuttle, chief engineer of the Board of Estimate, was to be in general direction of the tunnel project.

In becoming the engineering head of the proposed tunnel, Mr. Snow relinquished his work as principal assistant to Clifford B. Holland, chief engineer to the New York-New Jersey Tunnel Commissions on the Hudson river vehicular tubes.

SECOND SIMPLON TUNNEL. The second Simplon tunnel advanced to completion during the year by rapid stages. At the end of April the length of completed and fully lined tunnel was 19,408 m., out of a total length portal to portal of 19,825 m., while the entire excavation was completed September 13. This second tunnel was built by enlargement of the pioneer or ventilation heading driven parallel to the first tunnel when the latter was constructed. Naturally the enterprise was delayed by conditions during and subsequent to the war, but the second tunnel was virtually ready for traffic the end of the year.

PROPOSED THAMES TUNNEL. During the year it was reported that parliamentary sanction was being sought by a private company for the construction of a tunnel at the mouth of the Thames to connect the north and south banks. This project aimed to solve the difficulty due to the fact that a substantial amount of shipping was berthed in Tilbury Docks on the north side with freight consigned to Gravesend which is on the south. This made it necessary for such freight to travel to Gravesend via London, a distance of nearly sixty miles, notwithstanding the fact that Tilbury and Gravesend were in such close proximity. The scheme for the tunnel developed extensive support throughout the country, and commercial interests were urging its early commencement.

TURBINES. See **WATER WHEELS AND TURBINES**; **STEAM TURBINES**.

TURKESTAN. A division of Russia in Central Asia, comprising the provinces of Samarkand, Ferghana, Syr-Darya, and Semirychensk; with a total area of 420,807 square miles; and a population, estimated, Jan. 1, 1915, at 6,684,400. Chief towns: Tashkent, 271,650; Kokand, 113,700; and Omsk, 129,422. Turkestan is also the name of a dependency of China lying to the north of Tibet which forms a part of the so-called New Dominion or Sin-King.

TURKEY. Formerly the Ottoman empire. A country of Asia Minor bordering the eastern shore of the Mediterranean; limits still indeterminate at the close of the year (see below).

AREA AND POPULATION. Before the war Turkey was made up of: (1) Turkey in Europe which had been greatly reduced by the Balkan wars from an area of 65,350 square miles to 10,382 square miles, and from a population of 6,130,200 to 1,891,000. (2) Turkey in Asia, including, Anatolia, Arabia, Kurdistan, Mesopotamia, Palestine, and Syria. (3) Certain islands in the Mediterranean. The Asiatic dominion before the late war had an area of 602,842 square miles and a population of 18,892,900. Under the Treaty of Sèvres, August 10, 1920, as noted in the preceding YEAR BOOK, Turkey would have been reduced by 438,750 square miles of territory, and about 12,000,000 in population, but the treaty was not ratified and after being somewhat modified in favor of Turkey in March, 1921, it remained a dead letter; and owing to the war with the Greeks in Asia Minor, the separate treaty of France with the Angora government and other events, noted below under *History* and in the article, *WAR OF THE NATIONS*, the boundaries of Turkey were still indeterminate at the close of the year. The chief towns of the former Ottoman empire with their estimated populations were as follows: Constantinople, 1,000,000; Smyrna, 375,000; Damascus, 250,000; Aleppo, 259,000; Bagdad, 225,000.

PRODUCTION. The soil for the most part is fertile, and the interests are chiefly agricultural, but the methods are primitive. The chief products are: Cereals of all kinds, tobacco, coffee, cotton, madder, gums, opium, and a great variety of fruits and nuts. The production of wheat in 1919 was 2,453,680,000 kilos; of barley, 1,669,820,000 kilos; tobacco was cultivated on an area of 59,943 acres. Live stock was as follows: Cattle, 4,118,000; horses, 630,000; mules, 85,000; asses, 825,000; goats, 2,065,000; in each case a great falling off from the figures of 1913. The Asia Minor provinces are rich in minerals which, however, have been little worked. Industries are carried on by primitive methods.

COMMERCE. Since Turkey is primarily an agricultural and stock-raising country, the foreign trade has not been important and it amounted to very little after the armistice. The imports exceeded the exports in 1919 and 1920 by about three to one. Trade has been hindered by the lack of transport facilities which are the country's chief needs.

FINANCE. Budget figures for three years follow:

	1918-17 £T	1917-18 £T	1918-19 £T
Revenue.....	25,612,572	23,584,165	34,016,698
Expenditure.....	39,724,720	53,304,511	51,969,711

After the budget of 1918-19, noted in the above table, no regular budget was voted, the whole financial system having fallen into utter confusion after the armistice, and on Oct. 1, 1920, the Allied Powers established a provisional system of control through delegates in the public debt administration. The Angora government (de facto) issued budget estimates for 1921 as follows: Revenue, £T79,333,440; expenditure,

£T86,519,650. The total debt was placed, August 31, 1919 at £T465,673,338 of which £T234,155,138 represented war issues and the last external debt. Toward the close of the year the further depreciation of the Turkish pound accentuated the already acute commercial situation in Constantinople. On October 5 the Turkish pound dropped to 53¾ cents. During the week ending October 22 it continued to depreciate until the low level of 41¾ cents was reached—that is, one dollar was equivalent to 237 piasters. The pound sterling reached the high level of 915 piasters, the highest since 1878, when it required 1080 Turkish piasters to buy one pound sterling. Despite charges to the effect that the depreciation of the Turkish currency in relation to the dollar and pound sterling was caused by speculation, an analysis of the Turkish trade statistics for 1919, 1920, and the first eight months of 1921 showed conclusively that speculation was not the primary cause. The principal reason for the further depreciation of the Turkish pound may be charged to the adverse trade balance existing since the armistice. The lack of demand for Turkish pounds abroad and the increasing demand in Constantinople for dollars and the pound sterling could result only in the fall of the Turkish pound. The Turkish Minister of Finance suggested the following remedies: (1) The establishment of a consortium of banks; (2) the declaration of a moratorium for a certain time; (3) diminution of the commission given by banks to their exchange brokers; and (4) limiting the sale of credits in the currency of the countries from which Turkey gets most of its imports to the Imperial Ottoman Bank. The Minister of Commerce suggested a plan to encourage importations from Roumania, Bulgaria, and other countries whose currency was more nearly equal to the Turkish pound and discouraging further purchases, so far as possible, from the United States and England.

GOVERNMENT. The Sultan in 1921 was Mohammed VI who succeeded, July 3, 1918; and the ministry at Constantinople in 1921 was constituted as follows: Grand Vizier, Tewfik Pasha; Sheik-ul-Islam, Nouri Efendi; Foreign Affairs, Sefa Bey; Justice, Arif Hikmet Pasha; War, General Zia Pasha; Finance, Abdullah Bey (Acting); Public Instruction, Rashid Bey; Public Works, Abdullah Bey; Commerce and Agriculture, Hussem Kiazim Bey. Real power had passed from Constantinople in 1921 to the Nationalist government at Angora, as noted in the succeeding paragraphs on *History*.

HISTORY

WAR IN ASIA MINOR: FIRST GREEK OFFENSIVE.

The chief event of the year was the war between the Greeks and the Turkish Nationalists. In 1919 and 1920, the Greek army was occupying the coast regions of Asia Minor which were afterwards assigned to them by the Treaty of Sèvres. This treaty in 1921, became a dead letter as noted above and the Turks had at no time accepted the assignment of any territory whatsoever in Anatolia to the Greeks. Hence the Greeks had either to give up all the claims that had been made by the Venizelos government including those which had been conceded by the Allies, or else fight on their behalf. The fact that the campaign was conducted in the heart of Anatolia did not necessarily

indicate the Greek intention to conquer that region. They fought there because that was where they found the Turkish army. In the spring of 1919 the Greeks occupied Smyrna, and in 1920 the Venizelist general of the Greek army established himself in strong positions after a successful campaign. King Constantine lost his former Allies and he imperiled his military success by dismissing the experienced Venizelist generals. The principal events in the spring were in their chronological order as follows: Within the first two weeks of January the Nationalist leader of the Turks, Mustapha Kemal Pasha, with headquarters at Angora, 215 miles south of Constantinople, made an attack on the Greeks along the Smyrna front, at the same time that Turkish forces moved against the French front in Cilicia. The first Greek offensive began, March 24, under General Papoulas when two groups of the Greek forces advanced for the purpose of reaching, respectively, Afium-Karahissar and Eskishehr, destroying at the same time the railways in the region. Both groups reached the points aimed at, March 28 and March 30, but owing to the failure of the centre to advance and thus connect the two divisions, the operation was unsuccessful. The Greeks lost Eskishehr (April 2) and fell back to Oushak and Brusa, losing about 4000 men in killed and wounded and inflicting about the same or a greater loss upon the Turks, of whom, moreover, they were reported to have taken 6000 prisoners before Afium-Karahissar in a counter-attack on April 14. The Turks retained control of the railways. According to the accounts in the press the moral advantage appeared to rest with them. The Greek general now determined on measures to make amends for this reverse. He had about 150,000 men in the field, but in May the number was increased by the addition of three new classes to about 198,000 men and at the same time an additional force was called to the colors in Thrace which along with the quota from Smyrna brought the total to about 233,000. Still other classes were called until the army in the field reached approximately 300,000 while in reserve there were about 100,000.

SECOND GREEK OFFENSIVE. The second offensive began on June 10 from Brusa and Oushak in the south and aimed respectively at Kutaia, Afium-Karahissar, and Eskishehr. Other forces advanced from Bithynia and succeeded in occupying several Turkish positions about 20 miles to the east of Kutaia. At the same time the column starting from Oushak advanced in the neighborhood of Kutaia which was therefore between two forces of the Greeks. The battle at this point was the first great engagement. The Greeks surrounded the Turks on three sides and tried to prevent their escape to Eskishehr. Five Greek divisions were engaged in carrying out this encircling movement and the attack was made with great rapidity. The counter-attacks of the Turks were at once repulsed and the Turks were driven back after a bloody battle before Kutaia, July 16-17, but the Turks still had the railway open to them at Eskishehr and succeeded in escaping after the battle. The Greeks followed them, systematically fighting their way on both sides of the railway, while the northern group of the Greek forces fought its way down from Brusa, routing a force of 5000 Turks at Biledjik where they took a large number of prisoners. The

two Greek divisions met at Eskishehr, where they encountered a fierce Turkish counter-attack, but owing to the excellent artillery work of the Greeks it was held in check and the Greeks advancing captured the Turkish position and entered Eskishehr, July 21.

THIRD GREEK OFFENSIVE. The Greeks made sure of their positions and established their communications. Many of the Turkish troops deserted and the Greek general declared that their army had been destroyed. On August 15 the Greeks were occupying a line seventy miles east of Eskishehr. They began a forward movement on that date, placed three columns on the march, and came into conflict with the Turks, August 18, at a point forty-three miles southwest of Angora. Reports of the losses on each side were conflicting. The Greek campaign had for its objective the Sakharra river and it was carried on with great vigor, dispersing the flank attacks of the Turks and finally turning the Sakharra line, August 23-September 2.

The operations of the Greeks down to this time were remarkably successful, but the Turks tried to minimize their reverses and the reports of the two sides were contradictory. The Greeks contented themselves for a time with an energetic defense of the positions they had gained on the east bank of the Sakharra. The Turks sought to produce the impression that they had checked the Greek advance which was aiming at Angora. Nevertheless the Greeks had certainly succeeded in driving back the Nationalists beyond the Sakharra river. There were rumors at this time of a peace more on the part of Greece, but it did not seem likely that the Turkish Nationalists would grant the Greeks demands. They had in fact declared through Kemal that they considered Eastern Thrace inseparable from Turkey and that they would carry on the war for years if necessary to drive the Greeks out of Asia Minor. They held out for the return of Smyrna and Eastern Thrace to Turkey.

Early in September, however, the Turks rallied and in a ten days' battle routed the Greeks who had been exhausted by their continuous marching and their long battles. It was said that if the Turks had not run out of supplies they would have destroyed the Greek army which fell back to the lines in front of Eskishehr and Afium-Karahissar. The Greeks now began a retreat in the course of which they were said to have lost 25,000 men and the Turks over 50,000 men. This movement continued until September 25, when the Greeks reached the old Turkish line from Brusa to the south by way of Eskishehr and Afium-Karahissar. It was given out by the Greek government at this time that the military operations for the season were completed; but within five days the Turks made a counter-attack with a force placed at about 60,000 men and after a battle of nine days were defeated with heavy loss. This gave great encouragement to the Greeks, but meanwhile the Turks seemed not to be disturbed by their reverses and even to be reporting them as successes. At the very moment that the last unsuccessful attack was beginning Kemal was invested at Angora with the office of marshal and hailed as victorious. On September 25 the Greek High Commissioner in Smyrna published a programme which indicated Greek administration of the old Smyrna zone, although the zone had been

bestowed on Greece provisionally as a mandatory power under the treaty of Sèvres; and at the same time it was announced by the Greek minister of war that the government intended to declare the annexation to Greece of the territory occupied by Greek troops. At the close of the year, according to press reports, the Greeks had about 40,000 effective troops holding the lines in front of Afium-Karahissar, while the Turks could muster about 50,000, and the prevailing view was that fighting would not be resumed till spring. Many reports of massacres were published, according to which Turkish brigands massacred Christians and Christian brigands massacred Turks, the reports varying with the sympathies or interests of the reporters, but seeming to indicate that while the Greeks were guilty of occasional butcheries of the civil population the Turkish atrocities were more systematic and on a larger scale.

THE GREEK GOVERNMENT AND THE WAR. On October 15, the Gounaris government received a vote of confidence by a large majority, the supporters of Venizelos being too weak to offer any effective opposition. The situation in Asia Minor as outlined at that time by the prime minister, was as follows: The Greek forces according to him occupied six times as much territory as had been allotted to Greece by the treaty of Sèvres. This treaty had bestowed upon Greece 16,000 square kilometres and the Greeks were occupying in October about 100,000 square kilometres. The recent occupation of the Bagdad railway following the Greek victory of Eakishehr, had given the Greek forces a united front and decided them to advance against Angora. The recent retreat of the Greek army had been deliberately undertaken and had been carried out without disturbance, although the Turks sent out many false reports indicating that they had driven back their enemy. By October 15 Greece was in possession, according to the prime minister, of all the railway communications, whereas what was left of the enemy forces had been pushed back to a point far from the Greek lines and had been deprived of the means of communication and of provisioning. The international situation was still highly complicated. The state of war between Turkey and Greece had continued without regard to the armistice between Turkey and the Entente. The Turks had paid no attention to the terms of the armistice any more than they had to the terms of the Treaty of Sèvres. The situation was thus abnormal and Turkey was really at war with the Powers with which she had signed the armistice. Furthermore, the real centre of government in Turkey had shifted. It was evident that the government at Constantinople was a mere shadow and that the Nationalists under Kemal held at present the actual control. The prime minister declared that he would negotiate on behalf of Greece on the basis of the status quo which was far more advantageous to Greece than it had been at the time of the Treaty of Sèvres. The vote of confidence in detail was as follows. Out of 312 members of the Assembly, 218 voted for the ministry without reserve; 19 voted for it with reservations, while the Venizelists to the number of 71 withdrew from the Chamber.

THE ANGORA GOVERNMENT. The remarkable success of the Nationalists during the last two years brought Mustapha Kemal Paasha into prominence as among the greatest leaders in the Near East. He had been sent out from Constanti-

nople in 1919 as an inspector in the northern military district of Anatolia. When the Greeks occupied Smyrna, May 15, 1919, he collected a mob of patriots and refugees which formed the nucleus of the Nationalist army. Surrounded by enemies on all sides this small Nationalist force held its own and steadily increased in numbers. From the first he met with some favor with the French and from the Italians, but was opposed by the British. His campaigns against the Armenians of the Erivan Republic was successful, and by the end of 1920 his army had become a considerable force and his headquarters at Angora were the real centre of authority in Turkey. The government consisted of a single chamber of 350 elected deputies, known as the Grand National Assembly and representing all the divisions of the old empire except Syria, Egypt, the Arabian peninsula and the Basra and Bagdad provinces of Mesopotamia. But it was recognized that the old empire was really lost and the National assembly was considered as representing only Thrace, Constantinople, Smyrna, the Adana Plain, and the Mosul province of Mesopotamia, along with certain regions now held by foreign Powers which it was hoped would be restored to Turkey. The deputies were subject to the Sultan at Constantinople and the Assembly contributed to his civil list. In 1921 the contribution amounted to £1,551,012, but in 1921 the Assembly declared that it could not recognize any government at Constantinople. It elected its own president and ministry, the president having no veto and the ministry being responsible to the Assembly. The cabinet consisted of ministers for the following departments: Land and sea defense; revenue; audit; interior; posts and telegraphs; commerce and industries; public health; justice, education, and transport; and sacred law. Kemal held the office of president which roughly corresponds to that of grand vizier in the old government at Constantinople. The attempt to induce him to accept a dictatorship in 1920 was unsuccessful and he retained the office of president in 1921. He was born in 1882, educated at the War College in Constantinople and traveled widely in Europe. During the Young Turk movement he was one of the leaders and he held out for the cause after its defeat. At the time of the armistice he was generally regarded as the strongest man in Turkey. The policy of the new Nationalist government has included the following features: In the first place it abrogated the capitulations which the Turkish government had decreed soon after the war began. These granted immunity to foreign residents and tended to cover all manner of abuses. On January 24 the Angora Assembly formulated a new legal system re-dividing the country into administrative units, which took over many of the functions formerly discharged by the central government. The powers remaining to the general legislature include the administration of foreign and domestic affairs, and the army. The entire system rested on universal suffrage without any discrimination as among Christians, Jew and Moslems.

As to the actual results of the administration of the Nationalist government they were somewhat indefinite. Aside from having fought a successful defensive war, it seemed not to have made any especial progress in government. It had, however, made itself the real power in the Turkish state though nominally regarded as a rebel government

by the authorities at Constantinople. The orders of the government were respected throughout Turkey while those of Constantinople had no force. There were signs that the Constantinople authorities really acquiesced in this state of affairs and on certain occasions they worked in harmony with the Angora government. As to relations with foreign Powers, the Angora government was on friendly terms with France and Italy and receiving their diplomatic support. Moreover, it had entered into an alliance with Bolshevik Russia and the Caucasus republics. In theory the National Assembly was the head of the state, both executive and legislative, but in the crisis of the Greek war, during the summer, the Assembly made Mustapha Kemal dictator and afterwards extended his term to January. A social reform programme was developed on paper, but in the disturbed conditions of the year it was not put into effect. The important point was the relations of the subject races in Turkey. Mustapha Kemal had been a leading member of the Young Turk party and he still cherished its ideals. These included the transformation of Turkey into a true national state in which citizens must think politically as Turks whatever their racial or religious differences. The policy of the Angora government in this respect involved theoretically the protection of the minorities of different race or religion. It recognized the principle of cultural autonomy and professed to give the racial and religious minorities the same protection that had been accorded under the Treaty of Versailles to these minorities in the states of eastern Europe. The national pact which lays down these principles refers to Anatolia and Thrace as "the part of the empire, peopled by a Mussulman and Ottoman majority united by religion, race, and origin, whose different elements nourished toward each other, sentiments of consideration and of reciprocal devotion." As parts of the regions included under this description contained Greeks, Armenians and others, who had suffered from Turkish massacres, the situation seemed less harmonious than the words implied and it was believed that the Turkish authority would be enforced without mercy as it had been in the past, if there was any attempt at resistance. The opponents of the Nationalist government argued that its intense nationalism would lead inevitably to cruelties toward the subject races in the future; in other words, that it would be based, as it had been in the past, on enforcement by massacre.

FOREIGN RELATIONS. On February 5 Kemal declared that his government was the true government of Turkey, and in this he was supported by French and Italian influence. Both France and Italy favored recognition, but Great Britain was opposed. In March secret treaties were formed by France and Italy with the Angora government. The Nationalists were also on good terms with Soviet Russia with which, on March 16, a treaty was signed at Moscow, whereby Russia was to recognize Constantinople as the capital. Other terms were: The abandonment of Batum to Georgia by the Turks, and recognition of its autonomy; the division of Armenia among Georgia, Azerbaijan, and Turkey. The Russian and Turkish governments each demanded an international arrangement in respect to the territories bordering on the Black sea and the Straits. Treaties were also formed with the

Caucasus republics under Bolshevik control. There was a report which, however, was not substantiated though frequently credited, that the Turks had received \$5,000,000 in gold from the Bolsheviks. The alliance with Russia brought them effective aid in the matter of war material, while the alliance with the Caucasus republics strengthened them against possible aggression from the western Powers. More important was the treaty with France described in the following paragraph.

TREATY WITH FRANCE. On October 30 the French government ratified a treaty with the Turkish Nationalists at Angora, which provided for a state of peace and for economic coöperation between the two governments. According to the agreement France was to withdraw from Cilicia in return for various economic advantages, including the operation of the Bagdad railroad from the sea to the Tigris river and certain important mineral concessions. This agreement was significant as showing the friendship of France for the Nationalists and recognising the government at Angora as the ruling power of Turkey. It had been ratified at Angora before it was submitted to Paris. Further details of the agreement were as follows: Exchange of prisoners; amnesty for political offenders; an understanding that Turkey should guarantee the protection of minorities; establishment of a mixed commission to draft customs regulations between Turkey and Syria. In the letter from Kemal Pasha addressed to the French government on this occasion, the desire was expressed that French specialists be supplied to the Turkish technical schools. France held Syria under the mandate of the League of Nations and the boundaries between Turkey and Syria were laid down in the Treaty of Sèvres, which treaty was subsequently disregarded. From the end of the war France had occupied Cilicia, claiming it as a zone of influence and there were frequent conflicts between the French and the Turks over the region. There had been criticism in France of this policy as wasteful, and it was decided that the attempt to keep Cilicia was not worth the sacrifice that France would have to make. About 15,000 French troops had been latterly engaged there, and would be set free as a result of the above agreement. The treaty was hailed in France as a victory over British diplomacy which had hitherto, according to the French, had the upper hand. In the Near East France had lost Mosul and in the division of Turkey England had received by far the greatest share; the British also held the leading place in Constantinople. The attitude of the British toward the French treaty was illustrated by Lord Curzon's complaint that France had stolen a march on her Allies. See **WAR OF THE NATIONS.**

FRENCH AND BRITISH ATTITUDE. The elections of 1920 showed that the Greeks preferred their former king to M. Venizelos. In France the criticism of Greece on the ground of this preference and the hatred of Constantine were exceedingly bitter. In England there was no such general resentment against the course that Greece had taken. It was there generally understood that the departure of Venizelos did not mean that Greece had renounced her national ambitions. In this respect the British government was more clear-sighted than the French, for the Greeks continued their forward policy in Asia Minor.

As to the outcome of the war between Greece and Turkey British and French opinion was divided, the former inclining to the side of the Greeks, who it was believed would conquer, and the latter favoring the Turks. In Great Britain it was thought that a Greek victory would bring a clear and righteous solution of the Far Eastern question. The British had perhaps hoped that the question of Constantinople would be so regulated at Angora as to satisfy at the same time the nationalism of the Greeks and the British desire to control indirectly the Straits of Dardanelle. But the year passed without a military decision in favor of the Greeks, and Greece was obliged to give up the hope of settling the question on her own terms with the support of England. The British press began now to complain of the mistaken policy followed by the government, saying that the support that had been rendered to Greece was causing great embarrassment in various parts of the empire; that, for example, it had been the occasion of the disorders of the Malabar region in India and that among the Moslems generally the British attitude toward Greece had aroused the bitterest resentment and had endangered British authority in the Indies, Afghanistan, and other parts of the East. The British government was blamed because instead of renewing the bonds of friendship with the Turks after the war, it had preferred to enter into the Treaty of Sèvres and to ally itself with King Constantine. Thus in certain quarters, British opinion inclined to the same side as the French which had ever since the war been sympathetic toward the Turks. Among French writers in 1921 the most amiable tone was employed in respect to the Turks and it was said that the war-like ideals of France were traditionally in harmony with the generous spirit of this essentially military people. There was much sentimental writing on this subject on the part of the French, but at the basis of it was of course the belief that supporting Turkey was to the best interests of France in the Near East. At the end of the year, however, the French policy in respect to the Treaty of Angora seemed likely to be modified on the overthrow of the Briand ministry in December as the new prime minister, Raymond Poincaré, had accepted certain of the British criticisms of it, and disapproved it on the ground that it divided Allied Policy and that France was not justified in conceding to the Nationalists territories of which she had only a mandate. After the withdrawal of French troops began, November 28 the Christian minorities in Cilicia were reported to have suffered a series of savage outrages from the Turks. Many Greeks and Armenians withdrew at the same time as the French, but a considerable number remained and these petitioned the British and French governments and the League of Nations for relief from famine and for aid in removal to some other country.

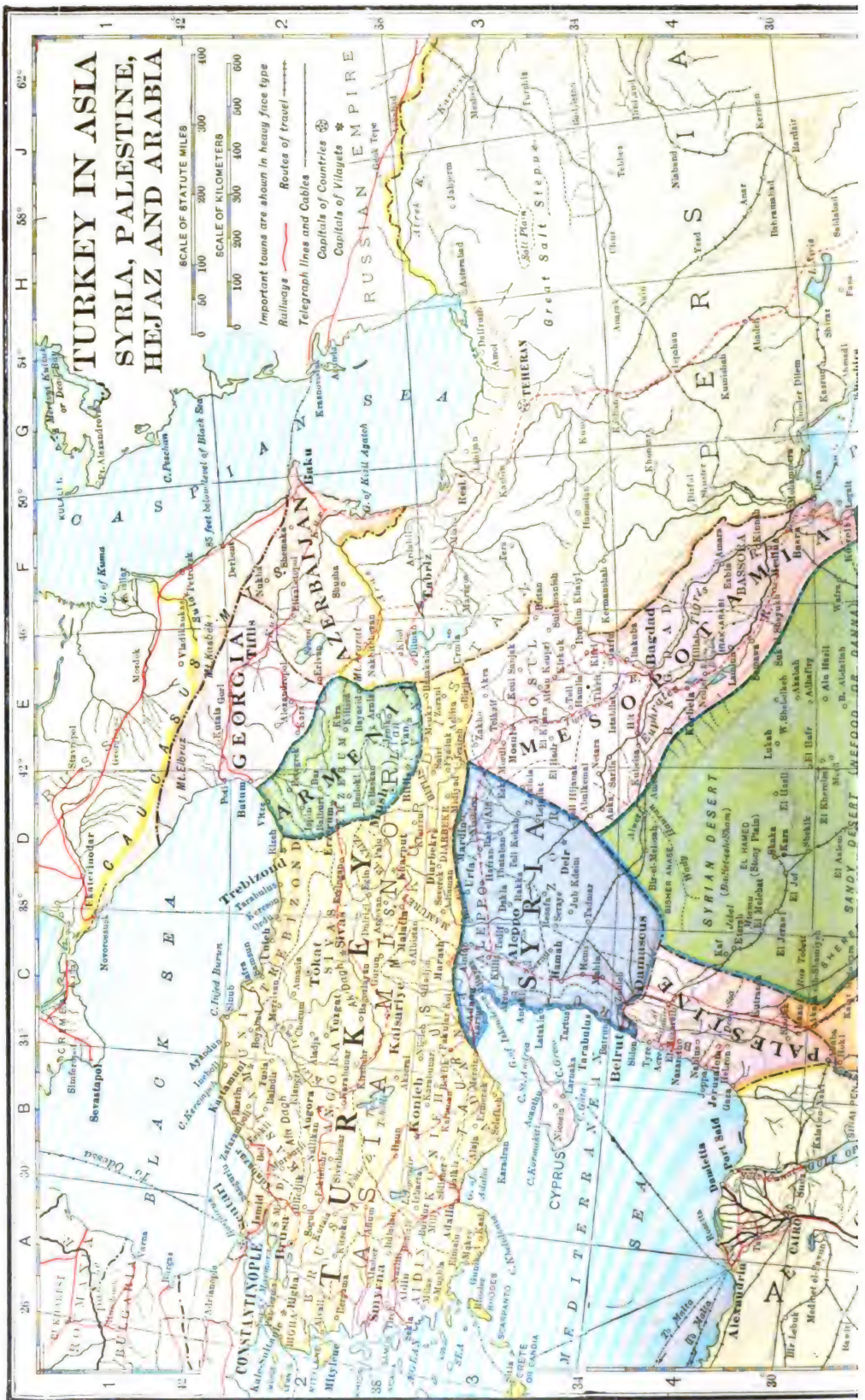
The British prime minister, Mr. Lloyd George, set forth the question of Turkey, Greece, and the Treaty of Sèvres, August 16. He said that it would have been better if, in accordance with the advice of Venizelos, the prime minister of Greece, the insurrection of the Nationalists in Turkey had been dealt with at once. It would have been possible then to suppress it, but now it was too late to use force for the purpose of bringing the Nationalists and the Greeks to terms, and they must be left to fight it out. As to the com-

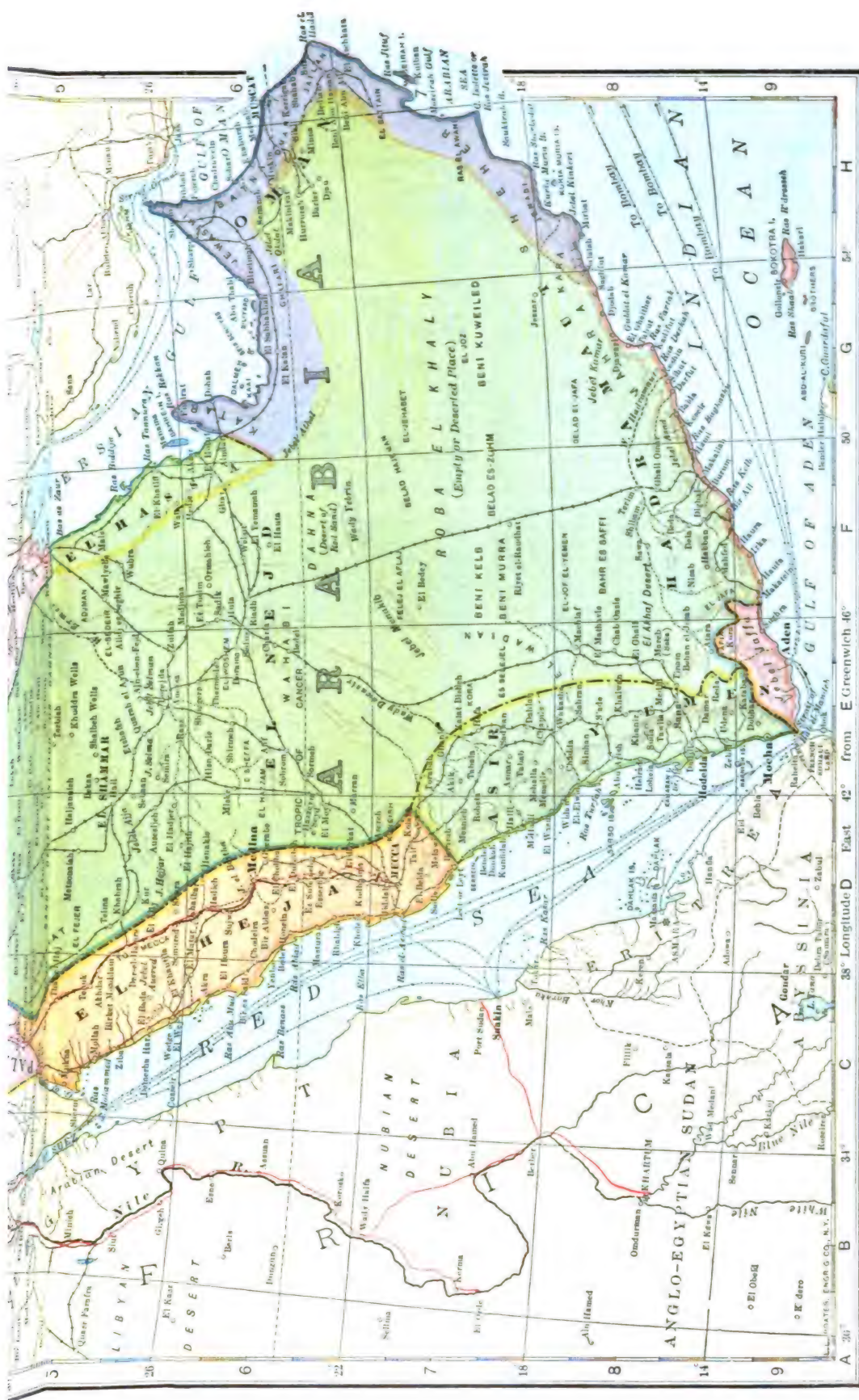
plaint that the matter had never been referred to the League of Nations, it was unfounded, for the League of Nations would only have had such means of dealing with it as the Allies could have placed at its disposal, and none of the Allies would have been ready to send an army into the country pending a decision. The war would have this advantage, in that it would bring both sides to a realization of its cost. On each side there had been over-confidence.

IRAQ. A new division was constituted in 1921 out of the vilayets of Basra and Bagdad together with a section of Mosul, with an area of about 140 square miles and a population of about 2,000,000. This new state was placed under the rule of the Emir Feisal, or Faisal, third son of the King of the Hedjaz, who had been nominated by Lord Allenby at a conference at Cairo. The crowning of Feisal as King of Irak took place at Bagdad, August 23, in the presence of the British High Commissioner for Mesopotamia and Mohammedan representatives, and was followed by a personal message of congratulations from King George of England. Feisal was born in the Hedjaz, 1885, studied at Constantinople, and became afterwards a member of the Turkish Chamber of Deputies and a leader of the Arab Nationalist party at Damascus. He was obliged by Djemal Pasha to accompany him when he was appointed Governor of Syria at the time when Turkey was about to side with Germany. During the war he was virtually a prisoner. He was taken into the confidence of Colonel Lawrence, when the latter negotiated with Hussein concerning the setting up of a new kingdom of the Hedjaz, and after the war Feisal was elected King of Syria by the Arab congress at Damascus. Then followed the trouble with the French which resulted in his being driven out by Gen. Gouraud, the French High Commissioner. (See preceding YEAR BOOK.) Feisal presented his case at Rome and London where he passed much of the time between December, 1920, and April, 1921. The British secured his support for their projects in Mesopotamia, and he undertook to make good his claim there by putting down Arab disturbances. He arrived at Basra, June 23, and began his campaign which resulted in his choice as ruler of the new state of Irak.

SITUATION AT THE CLOSE OF THE YEAR. The state of war with Greece still continued at the close of the year. Difficulties with the Bolsheviks in the rear of the Turkish forces were reported, and through the assistance of the Kurds arms were said to be supplied by Russia for the purpose of setting up a new state on the Black sea. The aggression of the Bolsheviks was attributed to the transfer to France in the Angora treaty of economic concessions that had already been granted to the Soviet government. The problem of peace in the Near East was under discussion among the Allies at the close of the year and was one of the subjects to come before the approaching conferences.

DEATH OF TALAAT PASHA. Former Grand Vizier and leader of the Young Turks was assassinated by an Armenian student, March 15, in Berlin where Talaat was engaged in the interest of the Turkish Nationalists. Owing to his association with the Armenian massacres during the war, the publication of his memoirs after his death caused a great sensation, especially in Turkey. They outlined the relations with Germany during Turkey's international isolation after the Balkan





wars, culminating, according to his narrative, in a definite alliance with Germany in the summer of 1914; and they gave instances of the pressure brought by Germany which forced Turkey much against her will into the conflict. As to the treatment of the Armenians the published portions of his memoirs admitted many abuses and atrocities, but placed the chief blame on the Armenians themselves on the ground that armed by Russia bodies of Armenian bandits, supported and encouraged by the civil population, attacked the Turks in the rear. "Every Armenian church it was later discovered was a depot of ammunition. In this disloyalty they killed more than 300,000 Mohammedans."

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. A non-sectarian, co-educational normal, and industrial institution for the higher education of negroes at Tuskegee Institute, Ala.; founded by Booker T. Washington in 1881. The enrollment for the fall of 1921 was 1918 and for the summer session, 660. There were 238 members in the faculty. President, Robert Russa Moton, LL.D.

TUSTIN, ERNEST LEIGH. Lawyer and city official, died at Baltimore, Md., December 19. At the time of his death he was Director of Public Welfare in Philadelphia. He was born at Lewisburg, Pa., Dec. 20, 1862, graduated at Bucknell University in 1884 and was admitted to the bar in 1886. He practiced at Philadelphia after 1887.

From 1905 to 1912 he was a member of the Pennsylvania senate. He held in succession important offices in the city's public and private institutions.

TYPHOID FEVER. Owing to an oversight the articles on **TYPHOID** and **TYPHUS FEVER** in the **YEAR BOOK** for 1920 were run together, through the omission of the title of the second article. The latter really begins with the paragraph in the second column on page 681 in which the opening sentence is "In an editorial article in the *Medical Record*, etc.;" and all of the text from this point on refers to typhus fever only.

In the province of typhoid fever there is nothing special to report for 1921. In a letter from Dr. John Dill Robertson, Commissioner of Health of the City of Chicago, it is stated that the diagnosis of this disease is made by physicians without recourse to serological or bacteriological tests—that is, these tests are not obligatory in reporting the case. The theoretical result of this omission should be to include a number of cases which are not technically typhoid, and thus add to the alleged typhoid incidence. But as a matter of fact Chicago has less typhoid than New York. The very low typhoid incidence in Chicago—but 31 cases in 1919—gave rise to the belief that serological and bacteriological tests, by excluding doubtful cases, was partly responsible. The letter of the commissioner shows that this does not follow: had these tests been made the incidence might have been still lower.

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UBANGI-SHARI. See FRENCH EQUATORIAL AFRICA.

UGANDA PROTECTORATE. A British protectorate in East Africa, to the north of the former German colony of German East Africa (now Tanganyika). Total area, 110,300, including 16,377 square miles of water; population, March 31, 1919, estimated at 3,318,217, all natives with the exception of about 3500 Asiatics and 847 Europeans. The chief product is cotton, which is grown almost entirely by natives. The area under cotton in 1920 was estimated at 155,000 acres. Other products include: Coffee, cocoa, Para rubber, and oil seeds. Total exports, 1919-20, £1,828,537. The chief exports were: Cotton which far exceeded any of the others; coffee, oil seeds, rubber, hides and skins, etc. Budget for 1919-20: Revenue, £495,548; expenditure, £465,117. Governor and Commander-in-Chief at the beginning of 1921, Sir R. T. Coryndon.

UKRAINE. A portion of Russia known as Little Russia, comprising for the most part the former Russian provinces of Podolia, Volhynia, Kiev, Poltava, Chernygov, Kharkov, and Ekaterinoslav, together with parts of the adjoining provinces. Additional regions are claimed by the Ukrainian government. Total area including portions claimed, 498,100; total population, 46,000,000 of whom 32,662,000 were classed as Ukrainians; 5,376,800, Russians; 3,795,760, Jews; 2,079,500, Poles. As to religious denominations the great mass belong to the Ukrainian Orthodox Church. The independence of Russian Ukraine was proclaimed, Nov. 21, 1917, and of Austrian Ukraine, Nov. 19, 1918. A provisional government consisting of a directory of five members was established, Dec. 14, 1918, which with a ministerial cabinet of fourteen members was to remain in authority until a parliament representing the whole people was elected. Austrian and Russian Ukraine were united, Jan. 3, 1919. In that year the Allied Powers recognized Ukraine's independence. A Soviet form of government was established in 1920. Soviet Russia and Poland both agreed to recognize the independence of Ukraine in the treaty of Riga, March 19, 1921.

UNEMPLOYMENT. The severe unemployment which began in the fall of 1920 has continued through 1921 and was scheduled to reach its maximum intensity in January and February of 1922. Taking the figures of the Bureau of Labor Statistics for April, 1921, as fairly representative of the volume of employment in 13 manufacturing industries and in bituminous coal mining for 1921 as compared with 1920 we see that the largest decreases, 41.9 per cent and 40.9 per cent respectively, occurred in the automobile and leather industries. Iron and steel showed a decrease of 36.2 per cent and hosiery and underwear a decrease of 32.2 per cent. The smallest decrease, 0.4 per cent appeared in cotton-manufacturing.

While unemployment varied from month to month and there are no final figures on the subject, it was estimated at the President's Conference in October that from 3,500,000-5,000,000 persons were out of work, more than 800,000 of whom were ex-soldiers. The outstanding official developments of the year towards the solution of this serious problem were not legislative—California's law arranging for such extension of public works as will provide the maximum of employment in times of extraordinary unemployment, and Wisconsin's and Pennsylvania's attempted laws for unemployment compensation representing the only constructive legislative proposals, unless the laws in Illinois, North Dakota, and North Carolina creating free employment service be included. The important development of the year was the President's Conference on Unemployment which set unemployment before the country in an official way as primarily a problem of industry. Secretary of Commerce Hoover, chairman of the conference, names 13 concrete results already apparent since that body adjourned in October. They are:

1. Public opinion, for the first time in American history, has been focused on unemployment.
2. Municipal committees are organized for the first time on a nation-wide scale to relieve it.
3. A national clearing house is ready to assist the municipalities, with district representatives in the field.
4. Industry is assuming a share of its responsibility to the unemployed.
5. Municipal bond sales for public works have broken all previous records.
6. Congress has inaugurated important public works (amounting to \$150,000,000 for highway improvement alone).
7. A large appropriation for the United States Employment Service is before Congress.
8. A variety of other measures have been introduced in Congress to carry out the recommendations of the Conference, such as Senator Kenyon's bill for long-range planning of public works.
9. Impetus is being given public education as to the nature of the problem of unemployment.
10. A scientific basis for future research is now being laid.
11. The construction industries are being organized nationally and locally under public direction, as, for example, in St. Louis.
12. In other notoriously seasonal and intermittent industries, such as the soft coal industry, stabilization studies are being planned.
13. A thorough investigation of methods for controlling the business cycle is in progress.

The Conference is now in touch with all cities of the United States of more than 20,000 population and 19 regional directors cover practically the entire Union. They report regularly to Col. Arthur Woods, Chairman of the Emergency Committee, which has been on the job in Washington since the Conference adjourned.

Although municipal programmes for emergency relief are necessary measures, and although the development of public works is a much favored means of alleviating unemployment, an increasing number are turning towards the stabilization of employment as the cure for unemployment, and to this end are advocating some form of the unemployment insurance which obtains in many European countries. In this connection J. S. Gibson, president of the Waterfront Em-

ployers' Union of Seattle, and an employer's representative at the President's conference, says: "What is needed in modern industry is not 'captains of industry' but 'statesmen in industry' who are equal to the task of stabilizing modern industrial life. Failing in this, industry will be called upon to bear the cost of unemployment through insurance, just as it has but recently assumed the responsibility for industrial accidents." Professor J. R. Commons of the University of Wisconsin states the case in this way: "For the sake of capitalism, capitalists should look ahead and assume legal responsibility for security of jobs equivalent to their legal responsibility for security of investments." At the annual convention of the A. F. of L. in June a resolution recommending the National enactment of unemployment benefits was proposed and defended at some length although finally amended out of the resolution.

FOREIGN. In the course of the year almost every country gave evidence of excessive unemployment. The industrial depression was felt not only on the Continent and in Great Britain, but in Japan and such remote countries as Finland and Iceland. Since unemployment has been especially acute in Great Britain and Italy, European generalizations will not particularly apply to these two countries, but in the main the Bureau of Labor Statistics expressed in October the opinion that the high level of unemployment had been reached in most countries and that a slight improvement in the industrial situation was slowly setting in throughout the world.

In response to repeated demands a law was passed in Italy for the alleviation of unemployment by increased loans and grants for the acceleration of existing and the inauguration of new public works. The law authorizes greatly increased expenditure by the Ministry of Public Works on various engineering projects, including 61,000,000 lire (\$11,773,000, par) for bridges and roads, 78,000,000 lire (\$15,054,000, par) for hydraulic works, and 60,000,000 lire (\$11,580,000, par) for harbor and coast works. Two special extraordinary grants are also authorized, viz., 300,000,000 lire (\$57,900,000, par) for the construction of the Predil railway from Trieste to Cividale, and Creda to Tervio, and 60,000,000 lire (\$11,580,000, par) for alterations to the Val Sugana line from the former Austrian frontier. All these sums are, however, to be spread over a series of years, but 100,000,000 lire (\$19,300,000, par) will be provided during the fiscal year 1921-22. See GREAT BRITAIN and ITALY.

UNION COLLEGE. A non-sectarian institution for the education of men at Schenectady, N. Y.; founded in 1795. The enrollment for the fall of 1921 was 678 and 124 in the extension courses. There were 56 members in the faculty and 6 lecturers. The endowment for the year amounted to \$1,797,114 and the income to \$273,725. The library contained 53,000 volumes. President, Charles Alexander Richmond.

UNITARIAN CHURCH. The government of this denomination is under the American Unitarian Association. In its List of Churches there are 452, of which 406 were active in 1921. Incomplete statistics show the following: 291 churches reported a constituency of 74,652; 258 churches

reported a membership of 32,695, of which 3755 were additions in 1921. In 229 churches reporting there were 13,532 pupils in Church Schools and officers and teachers numbering 1648. Ministers with salaries were 261 and ministers in the Fellowship 505. The chief Unitarian periodical is *The Christian Register*. Other periodicals of the denomination are *The Beacon*, *The Pacific Unitarian*, and *Unitarian Word and Work*. Five religious tracts on denominational subjects were also published in 1921. Three academies are maintained and three divinity schools, of which the Divinity School of Harvard University, Cambridge, Mass., is the largest. Churches as well as missionaries are maintained in Africa, Australia, Great Britain, New Zealand, Tasmania, Denmark, Norway, Sweden, Iceland, Japan, Palestine, India, Holland, Switzerland, Belgium, France, Bulgaria, Egypt, Germany, Italy, Jamaica, Russia, China, and Brazil. Home missionary work is carried on among the American Indians in the United States. The Ninety-sixth Annual Meeting of the American Unitarian Association was held in Boston, Mass., May 24, 1921. Samuel A. Eliot is President and Louis C. Cornish, Secretary. Denominational headquarters are at 25 Beacon Street, Boston, Mass.

UNITED BRETHREN IN CHRIST. Phillip W. Otterbein, a missionary of the German Reformed Church, founded this denomination in 1768. It consists of two branches, the Church of the United Brethren in Christ and the Church of the United Brethren in Christ (Old Constitution). Statistics for both branches in 1921 showed a total membership of 367,934, churches 3724, and total valuation of church property \$14,494,975.

In 1919 (the latest statistics available) there were in the United Brethren in Christ, which is the larger branch, 347,981 church members, 2403 ministers, 3498 churches, 3223 Sunday schools with an enrollment of 410,149, 1219 parsonages, 2367 Young People's Societies having a membership of 98,562. In 1920 the church conducted The United Enlistment Movement which proved very successful and aroused much enthusiasm for the continuance of the church work. Of the seven colleges and theological seminaries maintained, the Otterbein University at Westerville, Ohio, may be mentioned. More important of the periodicals of the denomination, are *The Religious Telescope* and *The Watchword*, published at the publishing house at Dayton, Ohio.

The smaller branch of the church, the Old Constitution Church, in 1919 had about 20,000 communicants. It maintains three colleges and publishes *The Christian Conservator* at Ubee, Ind.

UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA. This denomination is the strongest in the Middle West. In 1919 there was inaugurated the "New World Movement" to secure "the dedication of life, the enlistment of prayer, and the necessary funds to occupy and evangelize the fields and equip and endow the educational and missionary work under the control of the denomination at home and abroad according to the necessities of the present and immediate future." The church is composed of 13 synods and 70 presbyteries. In 1921 the ministers numbered 962, licentiate, 21, and congregations, 937. There were 986 church buildings with a valuation of \$13,543,213. Total contributions

for 1921 amounted to \$6,537,525, or an average of \$40.72 per member. The latest statistics for Sunday schools (May, 1919) showed 962 and 840 Young People's Societies. In 1920 the average salary of pastors was \$1772. Dr. W. M. Anderson is moderator of the church and D. F. McGill is the stated clerk with headquarters at 317 Home Ave., Bellevue, Pa.

UNITED STATES. POPULATION. The total population of continental United States as enumerated at the last census was 105,710,620. It comprised 94,820,915 white persons, 10,463,131 Negroes, and 426,574 Indians, Chinese, Japanese, etc. Of the white persons, 81,108,161 were natives and 13,712,754 were foreign born; and of the natives, 58,421,957 were born of native parents, 15,694,539 of foreign parents, and 6,991,665 were of mixed parentage—that is, having one parent native and the other foreign born. The corresponding figures for 1910 were as follows: Total population, 91,972,266; white, 81,731,957; Negro, 9,827,763; Indian, Chinese, Japanese, etc., 412,546; native white, 68,386,412; foreign-born white, 13,345,545; native white of native parentage, 49,488,575; native white of foreign parentage, 12,916,311; native white of mixed parentage, 5,981,526.

The increases between 1910 and 1920 in the total population and each class of population were as follows: Total, 13,738,354, or 14.9 per cent; white, 13,088,958, or 16 per cent; Negro, 635,368, or 6.5 per cent; Indian, Chinese, Japanese, etc., 14,028, or 3.4 per cent; native white, 12,721,749, or 18.6 per cent; foreign-born white, 367,209, or 2.8 per cent; native white of native parentage, 8,933,382, or 18.1 per cent; native white of foreign parentage, 2,778,228, or 21.5 per cent; and native white of mixed parentage, 1,010,139, or 16.9 per cent.

All these rates of increase except that for the Negro population were influenced directly or indirectly by immigration. The native white population of native parentage is recruited partly by births in the families of native whites of foreign or mixed parentage; the native white population of foreign or mixed parentage is recruited wholly by births in families where one or both parents are foreign born; and the foreign-born population is recruited wholly by immigration. The natural increase in the white population, due solely to excess of births over deaths, was probably at the rate of about 11 or 12 per cent during the decade.

The increase of only 367,209 in the foreign-born white population must not be understood as signifying a total immigration of only that number during the decade. The net increase is the resultant of three factors, namely, immigration, emigration of foreign-born whites, and deaths of foreign-born whites; and the gain through immigration exceeded by 367,000 the combined loss through emigration and death.

The white population formed 89.7 per cent of the total in 1920, as against 88.9 per cent in 1910; the native white population, 76.7 per cent in 1920 and 74.4 per cent in 1910; the native white population of native parentage, 55.3 per cent in 1920 and 53.8 per cent in 1910; the native white population of foreign parentage, 14.8 per cent in 1920 and 14 per cent in 1910; the native white population of mixed parentage, 6.6 per cent in 1920 and 6.5 per cent in 1910; and the foreign-born white

population, 13 per cent in 1920 and 14.5 per cent in 1910.

The native white population of native parentage increased between 1910 and 1920 in every State except New Hampshire and Vermont; the native white population of foreign parentage showed gains in every State except Iowa, Missouri, South Dakota, Nebraska, Kansas, Kentucky, Tennessee, Louisiana, and Nevada; and the native white population of mixed parentage increased in every State except Missouri, Kentucky, Tennessee, Mississippi, Louisiana, and Nevada.

AGRICULTURE. The detailed discussion under the title **AGRICULTURE** covers the general statistics for agricultural production in the United States and its dependencies. Special articles are carried on CORN, COTTON, WHEAT, RYE, BARLEY, HAY, POTATOES etc. See also in connection with agriculture in the United States the following articles: **AGRICULTURAL EDUCATION; AGRICULTURAL EXPERIMENT STATIONS; AGRICULTURAL EXTENSION WORK; AGRICULTURAL LEGISLATION; DAIRYING; FERTILIZERS; FOOD AND NUTRITION; HORTICULTURE; LIVE STOCK; SOILS; AGRICULTURE, UNITED STATES DEPARTMENT OF; FORESTRY, etc.** The articles on the individual States and territories contain paragraphs which give the area, production, and value of the more important crops in 1921.

MANUFACTURES. All the leading manufacturing industries in the United States are treated under separate titles such as **AUTOMOBILES; BOOTS AND SHOES; IRON AND STEEL; PAPER; RUBBER; SHIPBUILDING; SILK; TEXTILE INDUSTRY, etc.** For engineering works see articles on **BRIDGES; CANALS; PORTS AND HARBORS; SHIPBUILDING, etc.**

MINERAL PRODUCTION. For the latest available official figures of mineral production, see the article **MINERAL PRODUCTION**. Separate articles will be found on the more important minerals mined in the United States; see **COAL; COPPER; GOLD; IRON AND STEEL; LEAD; PLATINUM; SILVER, etc.** The articles on the individual States also contain paragraphs on *Mineral Production* where there were mining activities of note.

EDUCATION. For information relating to education see the articles on **EDUCATION in the UNITED STATES and UNIVERSITIES and COLLEGES**. Under separate headings will be found articles on the most important universities and colleges such as **HARVARD, YALE, PRINCETON, CHICAGO UNIVERSITY, COLUMBIA, etc.**

RELIGION. Statistics and other information relating to the various denominations will be found under the several heads of such denominations, for example, **BAPTISTS; CONGREGATIONALISTS; PRESBYTERIAN CHURCHES; METHODISTS; ROMAN CATHOLICS; PROTESTANT EPISCOPAL CHURCH, etc.**

OUTLYING POSSESSIONS. For the outlying possessions of the United States, see the articles, **ALASKA; GUAM; HAWAII; PHILIPPINES; PORTO RICO; and for other countries with which the United States government has been in close administration relation, see CUBA, DOMINICAN REPUBLIC; HAITI.**

FOREIGN COMMERCE. There are given below the total values of imports and exports of merchandise by grand divisions and principal countries for the 12 months ending December, 1920 and 1921.

Grand divisions and countries	12 months ended December—	
	1921	1920
IMPORTS FROM—		
Grand divisions:		
Europe.....	\$ 764,942,003	\$1,237,842,745
North America.....	754,726,955	1,662,663,071
South America.....	295,632,950	760,999,295
Asia.....	565,700,395	1,283,725,317
Oceania.....	87,660,578	192,965,868
Africa.....	40,372,522	150,285,194
Total.....	\$3,509,025,403	\$5,278,481,490

Principal countries:		
Belgium.....	35,242,501	47,443,156
Denmark.....	8,854,986	20,575,146
France.....	141,886,117	165,654,703
Germany.....	80,279,943	88,836,280
Greece.....	21,737,200	20,144,612
Italy.....	62,280,880	75,356,779
Netherlands.....	45,226,179	95,233,476
Norway.....	13,005,048	21,627,230
Spain.....	26,159,927	42,513,051
Sweden.....	19,765,767	31,612,153
Switzerland.....	41,315,877	54,556,098
United Kingdom.....	238,796,638	513,846,804
Canada.....	335,441,004	611,863,170
Central America.....	30,797,251	66,675,497
Mexico.....	119,145,533	179,331,755
Cuba.....	230,374,341	721,693,880
Argentina.....	56,925,960	207,776,868
Brazil.....	96,326,200	227,587,594
Chile.....	46,936,143	120,515,599
Uruguay.....	12,512,249	33,780,647
China.....	101,135,911	192,708,094
British India.....	78,188,776	176,073,650
Dutch East Indies.....	32,141,773	167,415,935
Japan.....	251,267,666	414,579,241
Australia.....	22,820,976	45,982,498
Philippine Islands.....	52,161,812	112,951,409
British South Africa.....	7,893,888	20,616,766
Egypt.....	22,013,469	97,015,066

EXPORTS TO—		
Grand divisions:		
Europe.....	\$2,363,917,686	\$4,466,090,927
North America.....	1,129,638,663	1,929,162,758
South America.....	273,321,529	623,916,990
Asia.....	486,095,731	771,748,562
Oceania.....	159,282,502	271,435,299
Africa.....	72,868,585	165,661,771
Total.....	\$4,485,122,696	\$8,228,016,307

Principal countries:		
Belgium.....	\$ 117,880,602	\$ 282,479,776
Denmark.....	39,554,648	85,074,449
France.....	224,941,707	676,190,970
Germany.....	372,325,232	311,437,377
Greece.....	29,376,363	39,462,042
Italy.....	215,462,901	371,762,274
Netherlands.....	170,880,508	245,803,873
Norway.....	32,117,312	94,661,767
Spain.....	69,197,443	151,440,032
Sweden.....	37,565,813	114,889,844
Switzerland.....	7,741,662	44,906,719
United Kingdom.....	942,106,854	1,825,033,197
Canada.....	583,675,306	971,852,474
Central America.....	53,197,799	86,366,301
Mexico.....	221,854,304	207,858,497
Cuba.....	187,726,179	515,208,731
Argentina.....	110,833,049	213,725,984
Brazil.....	58,106,414	156,740,365
Chile.....	26,487,166	55,274,565
Uruguay.....	13,771,381	33,720,550
China.....	108,290,435	145,737,321
British India.....	56,769,898	99,827,517
Dutch East Indies.....	32,340,408	59,018,192
Japan.....	235,423,679	377,941,926
Australia.....	82,756,378	119,778,178
Philippine Islands.....	46,516,049	99,829,994
British South Africa.....	25,373,425	60,939,159
Egypt.....	13,704,244	38,121,645

The accompanying table gives the imports and exports into and from the United States by principal groups in the calendar years 1920, and 1921:

Groups	Twelve Months ending December	
	1921	1920
IMPORTS		
Crude materials for use in manufacturing.....	\$ 853,084,747	\$1,751,940,081
Foodstuffs, crude, and food animals.....	303,967,645	577,626,948
Foodstuffs partly or wholly manufactured.....	368,842,656	1,238,138,941
Manufactures for further use in manufacturing.....	344,031,934	802,456,339
Manufactures ready for consumption.....	618,927,152	876,725,060
Miscellaneous.....	20,171,269	31,594,121
Total imports.....	\$2,509,025,403	\$5,278,481,490

EXPORTS		
Crude materials for use in manufacturing.....	\$ 984,025,577	\$1,870,767,054
Foodstuffs, crude, and food animals.....	692,166,371	917,990,828
Foodstuffs partly or wholly manufactured.....	669,703,375	1,116,605,173
Manufactures for further use in manufacturing.....	399,879,573	958,496,878
Manufactures ready for consumption.....	1,625,401,862	3,204,857,759
Miscellaneous.....	7,846,972	11,763,129
Total domestic exports.....	\$4,379,023,730	\$8,080,480,821
Foreign merchandise exported.....	106,098,966	147,535,486
Total exports.....	\$4,485,122,696	\$8,228,016,307

Lower prices rather than diminished quantities, were responsible for the three billion dollars decline in the value of American foreign trade during the last fiscal year, as compared with the fiscal year immediately preceding. According to the Director of the Bureau of Foreign Commerce, a compilation of exported commodities, reduced, so far as possible, to a quantity basis, showed weight increases of 34 per cent for the groups of raw materials and of 37 per cent for foodstuffs in 1921 over 1920, with a decrease of 4 per cent for such partly or wholly manufactured articles as could be shown in weight. Moreover, the final totals in this compilation, which included articles forming 69 per cent of the value of domestic exports in 1921, indicated that the exports of these goods increased 23 per cent in quantity over the amounts sold last year, though their value decreased 19 per cent. The world-wide exchange situation, revived competition in foreign markets, and decreased demand for American raw materials on the part of Europe, combined with a drastic cut in American imports of raw materials are the principal factors contributing to the lower foreign-trade totals.

SHIPPING. For statistics and other information in respect to the shipping of the United States during the year, see the articles SHIPPING and SHIPBUILDING.

CONDITION OF THE TREASURY JUNE 30, 1921. The public debt of the United States at the close of the fiscal year 1921 is set forth in detail in the accompanying table:

CONDITION OF THE TREASURY

Interest-bearing debt:	
Loan of 1925, 4 per cent.....	\$ 118,489,900.00
Consols of 1930, 2 per cent.....	599,724,050.00
Panama Canal loan, 2 per cent.....	74,901,580.00
Panama Canal loan, 3 per cent.....	50,000,000.00
Postal savings bonds, 2½ per cent.....	11,718,240.00
Conversion bonds, 3 per cent.....	28,894,500.00
Certificates of indebtedness.....	2,699,380,450.00
Treasury (war) savings securities.....	694,105,410.37
First Liberty loan, 3½ per cent.....	1,410,074,250.00
First Liberty loan converted, 4 per cent.....	17,982,800.00

Interest-bearing debt—Continued.

First Liberty loan converted, 4½ per cent.....	530,709,600.00
First Liberty loan second converted, 4½ per cent.....	3,492,150.00
Second Liberty loan, 4 per cent.....	77,870,150.00
Second Liberty loan converted, 4½ per cent.....	3,238,066,400.00
Third Liberty loan, 4½ per cent.....	3,611,560,300.00
Fourth Liberty loan, 4½ per cent.....	6,354,860,350.00
Victory Liberty loan, 3½ and 4½ per cent.....	3,913,780,850.00
Treasury notes, series A-1924.....	311,191,600.00
	\$23,737,852,080.87

Debt on which interest has ceased:

Funded loan of 1891.....	\$ 20,800.00
Loan of 1904.....	13,050.00
Funded loan of 1907.....	380,800.00
Loan of 1908-18.....	376,660.00
Refunding certificates.....	10,350.00
Old debt.....	893,960.28
Certificates of indebtedness, matured.....	9,244,000.00
	\$10,939,620.28

Cash in the Treasury June 30, 1921

(From revised statements)

Reserve fund:	
Gold coin and bullion.....	\$152,979,025.63
Trust funds:	
Gold coin and bullion.....	\$716,532,989.00
Silver dollars.....	201,534,213.00
Silver dollars of 1890.....	1,676,184.00
Total.....	\$919,643,386.00
Gold fund, Federal Reserve Board:	
Gold coin and bullion.....	\$1,537,856,895.45
General fund:	
In Treasury offices—	
Gold.....	\$263,015,170.02
Standard silver dollars.....	10,624,648.00
United States notes.....	4,031,479.00
Federal reserve notes.....	4,719,921.00
Federal reserve bank notes.....	2,422,847.50
National-bank notes.....	248,974.50
Subsidiary silver coin.....	9,663,502.04
Minor coin.....	2,392,673.78
Silver bullion (at cost).....	56,730,406.41
Unclassified (unassorted currency, etc.).....	3,141,005.18
Public debt paid, awaiting reimbursement.....	727,446.76
	\$357,708,074.14
In Federal reserve banks.....	\$43,475,862.73
In transit.....	30,083,061.41
	\$73,558,924.14
In special depositories—	
Account of sales of Treasury notes and certificates of indebtedness.....	\$395,738,063.16
In national-bank depositories—	
To credit of Treasurer of the United States.....	8,207,647.02
To credit of other Government officers.....	16,036,064.70
In transit.....	2,440,380.72
	\$26,684,092.44
In treasury of Philippine Islands—	
To credit of Treasurer of the United States.....	\$7,917,707.88
In foreign depositories—	
To credit of Treasurer of the United States.....	\$710,262.94
To credit of other Government officers.....	51,548,267.84
	\$52,258,530.78
	\$913,865,392.54

¹ This amount was largely reduced after the close of the fiscal year.

Deduct current liabilities—

National-bank note 5 per cent fund.....	\$18,495,044.96
Less notes in process of redemption.....	13,490,886.48
	\$5,004,158.50
Treasurer's checks outstanding.....	298,047.10
Post Office Department balance.....	18,769,940.53
Board of trustees, Postal Savings System balance.....	4,121,544.01
Balance to credit of postmasters, clerks of courts, disbursing officers, etc.....	77,659,580.48
Undistributed assets of insolvent national banks.....	1,630,871.72
Deposits for—	
Redemption of Federal reserve notes (5 per cent fund, gold).....	259,178,087.04
Redemption of Federal reserve bank notes (5 per cent fund).....	9,442,096.55
Retirement of additional circulating notes, act of May 30, 1908.....	67,560.00
Miscellaneous redemption accounts.....	4,795,176.84
	\$380,967,062.77

Balance in the Treasury June 30, 1921, as per statement of the public debt of the United States Government.....

\$532,898,329.77

For receipts and expenditures and the state of the public debt, see the article FINANCIAL REVIEW, paragraphs on *Government Finances*.

THE FIRST BUDGET. The President introduced the budget under the new budget system with a message to Congress, December 5. The table at bottom of page summarizes its details.

The introduction of the new budget system was the result of ten years of active work, beginning with President Taft's attempt to provide for executive control over national expenditures. The law approved June 10 providing for a national budget system and an independent audit of government accounts was hastened by the confused condition of the national finances resulting from the war. The new Bureau of the Budget created by the act had already done much during the few months that remained of the year toward improving the methods of the spending departments of the government and effecting economies. The saving in expenditures resulting from these efforts would be, according to the estimates, about \$582,000,000 for the fiscal year ending June 30, 1922. The estimates for the following fiscal year, ending June 30, 1923, were nearly \$1,000,000,000 less than those offered by the Secretary of the Treasury, August 4, 1921. The new system, however, was simply a step toward a genuine executive budget system, and, if it were to have that result, radical changes must still be made, but, according to some, they could not be introduced without an amendment to the constitution. The essential element of the budget system is that income and expenses are presented as a whole and considered in relation to each other. For purposes of comparison similar statements running back for a term of years must be considered. In the United States where the transactions of the government are complicated and very numerous this information had never been fully obtained. Appropriations in Congress being in the hands of

BUDGET SUMMARY

(Exclusive of postal revenues and postal expenditures paid from postal revenues)

	1923, Estimated	1922, Estimated	1921, Actual
Total receipts.....	\$3,338,182,750	\$3,943,453,663	\$5,624,932,960.91
Total expenditures, including reduction in principal of public debt.....	3,505,754,727	3,967,922,366	5,538,040,689.30
Excess of expenditures.....	\$167,571,977	\$24,468,703	
Excess of receipts.....			\$86,892,271.61

many separate committees in each House and being without executive control, there were practically no means of providing the information required under a genuine budget system. The machinery outlined in another paragraph, including the Bureau of the Budget, an independent audit department under a controller-general and a general accounting office, was established for the purpose of securing the necessary data. The criticism of the old system was that it lacked the elements of coördination and responsibility. The government did not retain control even of its ordinary routine business; and the civil departments were run without any general supervision. Before the close of the year the Bureau of the Budget had established a large number of co-ordinating agencies, including the following:

(1) A Federal Purchasing Board, on which the chief purchasing officer of each department serves with a chief coördinator as chairman named by the President;

(2) A Federal Liquidation Board, coördinating sales under a unified plan of large surplus stocks of the various departments of the government;

(3) A Corps Area Organization, corresponding to the nine Army Corps Areas, to provide for interdepartmental transfers and exchange of supplies in connection with either purchases or sales and operating together with the Purchasing and Liquidation Boards at Washington to handle properly the entire purchase and supply situation;

(4) A Surveyor General of Real Estate, to handle property owned by the United States and leases of property required for Government business and to assign and reassign spaces to the various departments, bureaus, or offices;

(5) A Federal Motor Transportation Agent, to coördinate motor transportation;

(6) A Federal Traffic Board, to coördinate and classify articles shipped by the Government and the business involved in the Government's annual transportation bill, which now amounts to \$200,000,000;

(7) A Federal Board of Hospitalization, for which now more than \$256,000,000 is being spent and in which the United States is feeding and housing about 500,000 persons;

(8) A Federal Specification Board, for the standardisation of specifications; and

(9) An Interdepartmental Board of Contracts and Adjustments.

ARMY AND NAVY. The Army and Navy are treated in the separate articles **MILITARY PROGRESS** and **NAVAL PROGRESS**. See also the titles **AERONAUTICS**; **SHIPBUILDING**; **SHIPPING**, etc.

POST OFFICE. The revenue of the Postal Service for the fiscal year ended June 30, 1921, including the fees from money-order and profits from postal-savings business, amounted to \$463,491,274.70. This was an increase of \$26,341,062.37 over the receipts for the preceding fiscal year, which were \$437,150,212.33. The rate of increase of receipts for 1921 over 1920 was 6.02 per cent, as compared with an increase in 1920 over 1919 of 19.81 per cent. The audited expenditures for the year were \$620,993,673.65, an increase over the preceding year of \$166,671,064.44, the rate of increase being 36.68 per cent. The audited expenditures for the fiscal year were therefore in excess of the revenues in the sum of \$157,502,398.95, to which should be added losses of postal funds by fire, burglary, and other causes, amount-

ing to \$15,289.16, making the total audited deficiency in postal revenues for the fiscal year \$157,517,688.11.

Service over all air mail lines in operation was uniformly good as is attested by the percentage of performance for the entire year, which was 85.96 per cent. When it is taken into consideration that the transcontinental flights were made daily over the wide ranges of the Allegheny Mountains and also over the barren and rugged expanse of the Rocky and Sierra Mountains and that it requires a considerable space of time for pilots to get acquainted with the territory over which they fly before giving dependable service, this performance was remarkable. There were 1,120,852 pounds of mail carried and 1,770,658 miles traveled during the year over all lines, at an operating cost of \$1,466,009.61. The operating cost during this period averaged 85 cents per mile on an average carrying capacity of 400 pounds per plane. After May 1 the air mail service was reorganized and improved with a material reduction in operating costs.

During the fiscal year 1921 government-owned motor-vehicle service was extended to 42 additional cities in lieu of contract service, making a total of 262 cities where government-owned motor-vehicle service was in operation, wholly or in part, involving the use of motor trucks of various capacities, from $\frac{1}{4}$ to 5 tons, and necessitating the employment of 4154 supervisory officials, clerks, mechanics, chauffeurs, and garagemen in connection with their operation and maintenance. The expenditure for this class of service during the fiscal year was \$11,777,842, being an increase of \$2,974,688 over that for the preceding year.

Approximately 90 per cent of the weight of all the mails is carried on the railroads and of this a large part is distributed or handled by the Railway Mail Service en route. There were in operation 219,709 miles of railway post-office service, with 274,165,856 miles of annual travel during the fiscal year. There was steady improvement in the resumption of service with the countries of the Postal Union since its interruption during the World War. Trans-Atlantic sailings were made with more regularity during the fiscal year; considerable improvement in the resumption and regularity of scheduled sailings in the trans-Pacific service, and conditions for the Central and Southern American service have improved. Considerable advance was made in the restoration of the sea post service, and the international parcel-post service has been extended. Parcel-post conventions were concluded during the year with Spain, Indo-China, Persia, the Straits Settlements, French Cameroon, Latvia, Finland, Kingdom of the Serbs, Croats and Slovenes, and the Fiji Islands. Parcel-post service, which had been suspended during the war period, was resumed with Germany, Austria, and Hungary. On Sept. 13, 1921, parcel-post service was inaugurated with Russia, via England. There were (1921) in effect conventions with 93 countries, and 95 points tributary thereto were provided with parcel-post service. The weight of parcel-post mail dispatched from the United States during the year was approximately 36,716,396 pounds, an increase of about 10 per cent over the previous year.

The balance to the credit of depositors in postal savings on June 30, 1921, was \$152,389,903, as compared with \$157,276,322 on deposit June 30,

1920. This was a reduction in net deposit of \$24,438,621 from the maximum amount held during March, 1919. The failure of postal savings to function as contemplated by its proponents was directly attributable to the facts that interest rate paid depositors was not high enough to make it attractive, that the maximum amount that could be deposited to one's credit was too low, that there was no provision for joint and trustee accounts, and, finally, that little or no sustained and consistent effort had been made to advertise the service and arouse the desire among people apprehensive of savings banks to save by depositing their money in postal savings; also that depositors had been treated unfairly in the nonpayment of interest unless the deposit was left a full year.

PENSIONS. The amount disbursed in the payment of pensions for the year was \$258,715,842, as against \$213,295,314 for the preceding year. The amount appropriated for the payment of pensions for the fiscal year 1921 was \$279,000,000, as against \$215,000,000 for the preceding year. The pensioners residing in foreign countries in 1921 numbered 3233 and received in pensions the sum of \$1,342,022. There were on the roll at the end of the fiscal year 566,053, a net loss of 26,137 from the total of 592,190 on the roll at the beginning of the year. The number of Civil War soldiers on the roll June 30, 1920, was 243,520, and on June 30, 1921, 218,775, showing a decrease of 24,745. The number of deaths of Civil War soldiers in 1921 was 24,775, as against 27,871 in 1920. The number of Civil War widows, minor children, and dependents on the roll June 30, 1920, was 290,209, and on June 30, 1921, 281,327, showing a decrease of 8882. The deaths of widows, minor children, and dependents in 1921 numbered 20,338, as against 21,752 in 1920. Of the War of 1812, there were surviving on June 30, 1921, 64 widows. Of the War with Mexico, there were on the roll June 30, 1921, 109 survivors and 2135 widows. Of the Indian wars from 1817 to 1891, there were on the roll June 30, 1921, 3784 survivors and 2569 widows. Of the War with Spain, there were on the roll under the provisions of the general laws 19,370 soldiers and 3471 widows, minor children, and dependents; under the act of July 16, 1918, 4745 widows and minor children; and under the act of June 5, 1920, 11,606 soldiers, a total of 39,282 War with Spain pensioners. By classes the roll showed on June 30, 1921, 267,629 soldiers, 290,955 widows, 2163 minor children, 919 helpless children, 4285 dependents, and 102 nurses.

PATENTS. The total number of applications filed jumped from 75,657 in the fiscal year 1919 to 107,656 in the fiscal year just closed, an increase of 43 per cent in two years. On June 30, 1919, the number of applications for patents awaiting action amounted to 17,735; on June 30, 1921, that number jumped to 49,334, creating a condition unprecedented in the history of the Patent Office. The average new case in 1921 was reached for first action in about 7 or 8 months, the normal period being 1 month. Legislation was pending in Congress which, if effected, would bring the condition back to normal. The number of patents granted and trade-marks, prints, and labels registered was 53,817, an increase of 6408 over the preceding fiscal year and 10,464 over the fiscal year 1919. The receipts of money for the year

were \$2,712,119.69, being an increase of \$96,422.36 over the preceding fiscal year and \$598,769.52 over the fiscal year 1919. The net surplus for the fiscal year was \$71,745.73, making a total of profit to the government out of the Patent Office to date of \$8,376,769.29.

EMBASSIES AND LEGATIONS TO THE UNITED STATES:

Argentina—Tomas A. Le Breton, Ambassador extraordinary and minister plenipotentiary.
Belgium—Baron E. de Cartier de Marchienne, Ambassador extraordinary and minister plenipotentiary.
Bolivia—Adolfo Ballivian, Envoy extraordinary and minister plenipotentiary.
Brasil—Augusto Cochran de Alencar, Ambassador extraordinary and minister plenipotentiary.
Bulgaria—Stephan Panaretov, Envoy extraordinary and minister plenipotentiary.
Chile—Don Beltran Mathieu, Ambassador extraordinary and minister plenipotentiary.
China—Sao-Ke Alfred See, Envoy extraordinary and minister plenipotentiary.
Colombia—Dr. Carlos Adolfo Urueta, Envoy extraordinary and minister plenipotentiary.
Costa Rica—Dr. Octavio Broche, Envoy extraordinary and minister plenipotentiary.
Cuba—Dr. Carlos Manuel de Cespedes, Envoy extraordinary and minister plenipotentiary.
Czechoslovakia—Dr. Bedrich Stepanek, Envoy extraordinary and minister plenipotentiary.
Denmark—Constantin Brun, Envoy extraordinary and minister plenipotentiary.
Dominican Republic—Emilio C. Joubert, Envoy extraordinary and minister plenipotentiary.
Ecuador—Don Rafael H. Elisalde, Envoy extraordinary and minister plenipotentiary.
Finland—Armas Herman Saastamoinen, Envoy extraordinary and minister plenipotentiary.
France—J. J. Jusserand, Ambassador extraordinary and minister plenipotentiary.
Great Britain—Sir Auckland Geddes, Ambassador extraordinary and minister plenipotentiary.
Greece—Georges Dracopoulos, Secretary of legation and chargé d'affaires ad interim.
Guatemala—Dr. Julio Bianchi, Envoy extraordinary and minister plenipotentiary.
Haiti—Albert Blanchet, Envoy extraordinary and minister plenipotentiary.
Honduras—Don J. Antonio López Gutierrez, Envoy extraordinary and minister plenipotentiary.
Italy—Vittorio Rolandi Ricci, Ambassador extraordinary and minister plenipotentiary.
Japan—Baron K. Shidehara, Ambassador extraordinary and minister plenipotentiary.
Mexico—Dr. Salvador Diego-Fernandes, Minister plenipotentiary and chargé d'affaires ad interim.
Netherlands—Dr. J. C. Everwijn, Envoy extraordinary and minister plenipotentiary.
Nicaragua—Don Emiliano Chamorro, Envoy extraordinary and minister plenipotentiary.
Norway—H. H. Bryn, Envoy extraordinary and minister plenipotentiary.
Panama—Don J. E. Lafèvre, Secretary of legation and chargé d'affaires ad interim.
Paraguay—William Wallace White, Consul-general of Paraguay in New York City.
Persia—Mirza Hussein Khan Alai, Envoy extraordinary and minister plenipotentiary.
Peru—Don Federico Alfonso Peset, Ambassador extraordinary and minister plenipotentiary.
Poland—Prince Casimir Lubomirski, Envoy extraordinary and minister plenipotentiary.
Portugal—Viscount d'Alte, Envoy extraordinary and minister plenipotentiary.
Roumania—Prince A. Bibesco, Envoy extraordinary and minister plenipotentiary.
Russia—Boris Bakhmetieff, Ambassador extraordinary and minister plenipotentiary.
Salvador—Don Salvador Sol, Envoy extraordinary and minister plenipotentiary.
Serbs, Croats and Slovenes—Dr. Slavko Y. Grouitch, Envoy extraordinary and minister plenipotentiary.
Siam—Phya Prabha Karavongse, Envoy extraordinary and minister plenipotentiary.
Spain—Don Juan Riazor y Gayangos, Ambassador extraordinary and minister plenipotentiary.
Sweden—Captain Axel F. Wallenberg, Envoy extraordinary and minister plenipotentiary.
Switzerland—Marc Peter, Envoy extraordinary and minister plenipotentiary.
Uruguay—Jacobo Varela, Envoy extraordinary and minister plenipotentiary.
Venezuela—Don Santos A. Dominici, Envoy extraordinary and minister plenipotentiary.

EMBASSIES AND LEGATIONS OF THE UNITED STATES:

Argentina—_____, Ambassador extraordinary and plenipotentiary.
 Belgium—Brand Whitlock, Ambassador extraordinary and minister plenipotentiary.
 Bolivia—Jesse S. Cottrell, Envoy extraordinary and minister plenipotentiary.
 Brazil—Edwin V. Morgan, Ambassador extraordinary and minister plenipotentiary.
 Bulgaria—Charles S. Wilson, Envoy extraordinary and minister plenipotentiary.
 Chile—William Miller Collier, Ambassador extraordinary and plenipotentiary.
 China—Jacob Gould Schurman, Envoy extraordinary and minister plenipotentiary.
 Colombia—Hoffman Philip, Envoy extraordinary and minister plenipotentiary.
 Costa Rica—_____, Envoy extraordinary and minister plenipotentiary.
 Cuba—Lewis Einstein, Envoy extraordinary and minister plenipotentiary.
 Czecho-Slovakia—Richard Crane, Envoy extraordinary and minister plenipotentiary.
 Denmark—John Dynaley Prince, Envoy extraordinary and minister plenipotentiary.
 Dominican Republic—William W. Russell, Envoy extraordinary and minister plenipotentiary.
 Ecuador—Charles S. Hartman, Envoy extraordinary and minister plenipotentiary.
 Egypt—J. Morton Howell, Agent and consul-general.
 Finland—Charles L. Kagey, Envoy extraordinary and minister plenipotentiary.
 France—Myron T. Herrick, Ambassador extraordinary and minister plenipotentiary.
 Great Britain—George Harvey, Ambassador extraordinary and minister plenipotentiary.
 Greece—_____, Envoy extraordinary and minister plenipotentiary.
 Guatemala—Roy T. Davis, Envoy extraordinary and minister plenipotentiary.
 Haiti—Arthur Bailly-Blanchard, Envoy extraordinary and minister plenipotentiary.
 Honduras—Franklin E. Morales, Envoy extraordinary and minister plenipotentiary.
 Italy—Richard Washburn Child, Ambassador extraordinary and minister plenipotentiary.
 Japan—Charles Bocher Warren, Ambassador extraordinary and minister plenipotentiary.
 Liberia—Solomon Porter Hood, minister resident and consul-general.
 Mexico—_____, Ambassador extraordinary and minister plenipotentiary.
 Morocco—Maxwell Blake, Agent and consul-general.
 The Netherlands—William Phillips, Envoy extraordinary and minister plenipotentiary.
 Nicaragua—John E. Ramer, Envoy extraordinary and minister plenipotentiary.
 Norway—Laurits S. Swenson, Envoy extraordinary and minister plenipotentiary.
 Panama—John Glovis Smith, Envoy extraordinary and minister plenipotentiary.
 Paraguay—Daniel F. Mooney, Envoy extraordinary and minister plenipotentiary.
 Persia—_____, Envoy extraordinary and minister plenipotentiary.
 Peru—William E. Gonzales, Envoy extraordinary and minister plenipotentiary.
 Poland—Hugh S. Gibson, Envoy extraordinary and minister plenipotentiary.
 Portugal—Thomas H. Birch, Envoy extraordinary and minister plenipotentiary.
 Roumania—Peter Augustus Jay, Envoy extraordinary and minister plenipotentiary.
 Salvador—Montgomery Schuyler, Envoy extraordinary and minister plenipotentiary.
 Serbs, Croats, and Slovenes—H. Percival Dodge, Envoy extraordinary and minister plenipotentiary.
 Siam—Edward E. Brodie, Envoy extraordinary and minister plenipotentiary.
 Spain—Cyrus E. Woods, Ambassador extraordinary and minister plenipotentiary.
 Sweden—Ira Nelson Morris, Envoy extraordinary and minister plenipotentiary.
 Switzerland—Joseph C. Grew, Envoy extraordinary and minister plenipotentiary.
 Uruguay—_____, Envoy extraordinary and minister plenipotentiary.
 Venezuela—Willis C. Cook, Envoy extraordinary and minister plenipotentiary.

CONGRESS

SIXTY-SIXTH CONGRESS. The final session of the Sixty-Sixth Congress was held, December 6-March 4. The principal features of the session

after January 1 were as follows: President Wilson on January 3 vetoed the measure of Congress reviving the War Finance Corporation, but it was passed over the President's veto. All the regular appropriation bills with one exception were passed during the session, the exception being the bill making an appropriation for the navy, which was held up in the Senate by the opposition of Senator Borah and others to the present naval programme. The army appropriation bill passed in the latter part of the session was vetoed by the President on the ground that the reduction in military strength was extreme. The bill appropriated \$346,703,907 and provided for an army of 156,666 men. The President approved, February 28, the Winslow-Townsend amendment to the Transportation Act, authorizing the payment to the railroads of about \$370,000,000 in advance of a final accounting, in view of the guarantee of earnings provided in the Transportation act. He signed, February 28, the bill providing for the return by the Alien Property Custodian of the property seized during the war which belonged to women citizens of the United States and the Allied countries who had married enemy subjects before the declaration of war. He vetoed, March 3, the Fordney Emergency Tariff bill, levying high duties on imported agricultural products, and the House failed to obtain the necessary two-thirds majority when it endeavored to pass it over the President's veto. The President also vetoed the immigration measure which limited the number of immigrants to 3 per cent of the number of foreigners of each nationality that were in the United States at the time of the 1910 census. The House voted against the increase of its membership from 435 to 483 as provided in the reapportionment bill reported by the census committee. The vote was 276 to 77. The ratio on the basis of the new census was 1 to every 242,267.

SIXTY-SEVENTH CONGRESS (SPECIAL SESSION). The first session of the Sixty-Seventh Congress was specially convoked by President Harding, April 11. Frederick H. Gillett (Republican) of Massachusetts was reelected speaker. The Democrats voted for Claude Kitchin who became the minority leader. In the President's message, April 12, the leading points were: Necessity of economy in expenditures; adoption of a national budget system; reform of internal tax measures; and abolition of the excess profits tax; emergency tariff legislation; protection of agricultural interests; reduction of railway costs of operation in order that rates might be reduced; intention of the United States to establish a great merchant marine; need of a bureau of aeronautics; the need of Congressional action against lynching; refusal of the United States to take part in the existing League of Nations; recommendation that Congress should pass a resolution, declaring peace with the Central Powers. The immigration bill vetoed by President Wilson was passed by the House, April 22, and by the Senate with amendments, May 3, and signed by the President, May 19. This contained the provision above mentioned, limiting immigrants of any nationality during the fiscal year to 3 per cent of the number of that nationality in the United States at the census of 1910, and further provided that not more than 20 per cent of any nationality admissible during any fiscal year should be admitted during

any single month. Rules and regulations for the application of the act were to be prescribed by the Commissioner-general of immigration with the approval of the Secretary of Labor (see IMMIGRATION AND EMIGRATION). The Emergency Tariff bill was passed by the House, April 15 (269 to 112), and by the Senate with amendments, May 11 (63 to 28), and approved by the President, May 27. Its chief purpose was to protect agricultural products from foreign competition, and it included stringent provision against the dumping of these products on the market at prices lower than those prevailing abroad. As between the value in the foreign market and the export value at the port of entry, the duties were to be based on whichever was the higher. Among the rates prescribed were the following: Wheat, 35 cents a bushel; corn, 15 cents a bushel; beans, 2 cents a pound; peanuts, 3 cents a pound; cotton, 7 cents a pound; cattle 30 per cent ad valorem; fresh meats, 2 cents a pound; wool, 15 cents to 45 cents a pound; butter, 6 cents a pound; cheese, 23 cents a pound. A budget law following the same general lines as the bill vetoed in 1920 by President Wilson was finally enacted, the Senate measure passing, April 26; the House measure, May 5, and a conference measure being accepted by both Houses, May 26-27, and signed by the President, June 10. This provided for a budget bureau in the treasury department headed by a director with a salary of \$10,000 a year and an assistant-director with a salary of \$7500, both appointed by the President. The budget bureau under the President's direction was to prepare the budget, and was also empowered to gather and revise the estimates of the civil departments (see above under *The First Budget*). The navy appropriation bill which had failed to pass the Senate in the previous session, passed the House again, April 28, by a vote of 212 to 15, and passed the Senate with amendments, June 1, by a vote of 54 to 17. The House measure carried an appropriation of \$396,000,000. The Senate measure added to this about \$15,000,000 for the pay of the navy personnel. To the Senate bill was added an amendment by Senator Borah which provided for an international conference on armament. This marked the beginning of the movement which resulted in the calling of the disarmament conference at Washington (see WAR OF THE NATIONS). The amendment was as follows:

"That the President is authorized and requested to invite the governments of Great Britain and Japan to send representatives to a conference, which shall be charged with the duty of promptly entering into an understanding or agreement by which the naval expenditures and building programmes of each of said governments, to wit, the United States, Great Britain and Japan, shall be substantially reduced annually during the next five years to such an extent and upon such terms as may be agreed upon, which understanding or agreement is to be reported to the respective governments for approval."

The Senate measure as finally adopted carried appropriations amounting to \$494,000,000, but, after the bill was in conference, this was cut down to \$417,000,000. It was approved by both Houses, July 11, and by the President, July 12. The army appropriation bill passed the House, May 10, by a vote of 241 to 23, carrying appropriations amounting to \$331,000,000, and providing for an army of 150,000 men. It was passed by the Senate, June 8; the conference report on it was agreed to by the House, June 17, and by the Senate, June 22; and the bill was signed by the

President, June 30. Pursuant to the President's recommendation, the Senate voted by 49 to 23 on April 30 the Knox resolution which declared the state of war between the United States and Germany and Austria-Hungary at an end, and repealed the original declaration of war. The House on June 13 adopted by a vote of 305 to 61 the Porter substitute resolution, declaring the war at an end, but not repealing the declaration of war. A compromise in conference was accepted by the House, June 30, and by the Senate, July 1, and was signed by the President, July 2. It declared the state of war at an end, and read in part as follows:

"That in making this declaration, and as a part of it, there are expressly reserved to the United States of America and its nationals any and all rights, privileges, indemnities, reparations, or advantages, together with the right to enforce the same, to which it or they have become entitled under the terms of the armistice signed November 11, 1918, or any extensions or modifications thereof; or which were acquired by or are in possession of the United States of America by reason of its participation in the war or to which its nationals have thereby become rightfully entitled; or which, under the treaty of Versailles, have been stipulated for its or their benefit; or to which it is entitled as one of the principal allied and associated powers; or to which it is entitled by virtue of any Act or Acts of Congress; or otherwise." See below under *Treaty with Germany*.

It also provided that German property taken over by the United States should be retained by the United States, except as provided otherwise by law, until the German government had taken suitable measures for satisfying the claims of Americans. Other parts of the Republican programme that were carried out were: The ratification of the \$25,000,000 Colombian treaty; Federal aid to the States in the building of roads; appropriating \$75,000,000 and providing for Federal coöperation; the Maternity bill (see MATERNITY PROTECTION); reorganization of relief agencies for veterans of the war; the Packers' bill regulating commerce in live stock, poultry, eggs and dairy products, and supplying the Secretary of Agriculture with power and means to prevent abuses; Measures intended but not accomplished included various ones for reconstruction, such as, measures for the relief of the railways, and adjustment of the foreign war debt. The Borah bill for exempting American coastwise shipping from Panama Canal tolls passed the Senate, but was held up in the House at the President's request, in the hope that diplomatic arrangements for the modification of the Hay-Pauncefote Treaty might be made.

The special session ended, November 23, the chief purposes for which it had been called was the enactment of laws revising the tariff and the taxes. It was pointed out by Republican leaders that a substantial measure of success had been obtained in respect to the taxes since the tax burdens would be reduced for the current year by \$17,000,000, and under the new tax law beginning January 1, there would be a reduction during the year of \$835,000,000; and they referred to the removal of various petty burdens, such as the collection of taxes on soda water, ice cream cones, pills, parcel post, etc. The following measures passed during the special session were those chiefly emphasized in the press: The Revenue act of 1921; the Budget act; the Emergency Tariff act; the Peace Resolution; the Veterans' Bureau act; the Immigration Restriction act; the Volstead 8 Anti-Beer act; the \$25,000,000 Farm Loan act; the 1922 Naval Appropriation act; the 1922 Army Appropriation act; the Grain Futures act; the



Photo Moffett, Chicago

WILLIAM E. BORAH
Idaho



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OSCAR W. UNDERWOOD
Alabama



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FREDERICK H. GILLETT
Massachusetts



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JOSEPH M. FORDNEY
Michigan

SENATORS AND REPRESENTATIVES PROMINENT IN 1921



'Packers' act; the War Finance Agricultural Loan act; the Federal Highway act; the Maternity act; the Act for the Apportionment of Waters of the Colorado River; legislation and appropriation for the Shipping Board; the Edge Export act; the Cable Control act; the Indian Bureau act.

The special session ended without taking complete action on the tariff; the railway funding question; the question of refunding the foreign debt; the Alaskan railway appropriation; or the measure pertaining to "truth in fabric."

The Agricultural Bloc, the main feature of the special session, was the organization of a strong body of dissidents in the Republican party, representing mainly the West, which opposed the revenue bill and necessitated changes unacceptable to the party leaders. This element rejected the President's recommendation of a reduction of surtaxes to 32 per cent. The opposition showed itself first in the Senate and then developed in the House, and before the session had ended, it had gained new adherents, and held the balance of power. It was opposed to the projected tariff measure and threatened to make radical changes in it, as in the case of the revenue bill. The Republicans had planned in the special session to reduce the war revenue taxes in such a way as to encourage capital to invest itself in production. This programme was not carried out in the manner intended. Another effect of this Republican opposition representing western farm interests, was to be seen in various measures which mainly concerned the West, including the temporary regulation of grain markets, Federal inspection and control of the meat packing industries, and an extension of a credit of a billion dollars for the exportation of farm productions. See the article AGRICULTURAL LEGISLATION and AGRICULTURE. See also RAILWAYS; ROADS AND PAVEMENTS.

SIXTY-SEVENTH CONGRESS (REGULAR SESSION). The first regular session of the Sixty-Seventh Congress was opened, December 5, and received from the President in joint session the first budget under the new law. This showed a deficit of \$167,571,977 under the new tax bill estimate. On December 6 the President delivered his annual message which included among other features: A recommendation of an early refunding of the foreign debts; the regulation of non-taxable securities; measures for the relief of the Russian famine; cooperative agricultural relief; and a tariff which should be flexible in character.

SENATE RECORD. December 6. The Senate voted to turn over to the American Relief Administration the surplus war material for use in European famine relief.

December 8. A resolution was passed for the investigation of the dye industry and lobby. The Senate committee appointed to investigate the charges made by Senator Watson in respect to illegal executions of Americans in France, received testimony to the effect that only eleven men under death sentences were executed.

December 12. The first deficiency bill was passed, carrying \$106,800,000, an increase of \$3,000,000 over the House measure. An attack was opened by Senator Borah against the proceedings of the Disarmament Conference, especially as regards the Four-Power treaty, on the ground that the United States was committed to the use of force and to the legalisation of submarines and poison gas. An administration measure to establish a Bureau of Civil Aviation in the Department of Commerce for the purpose of encouraging and regulating aviation was introduced by Mr. Wadsworth of New York. The first deficiency bill of \$106,800,000 with \$3,000,000 added to the House figures was passed.

HOUSE RECORD. December 10. A bill appropriating \$10,000,000 for the purchase of 10,000,000 bushels of corn and 1,000,000 bushels of seed grain for the relief of the Russian famine was introduced by Mr. Fordney. A bill pro-

viding for the appointment of 22 new Federal judges was passed by a vote of 197 to 90.

December 14. The House bill for the relief of the Russian famine (\$20,000,000) doubled the appropriation voted by the Senate.

STATE DELEGATIONS

[Republicans in roman; Democrats in italics; Socialist in small caps; Republican and Progressive in roman with *.]

ALABAMA.—SENATORS: *Oscar W. Underwood, J. Thomas Heflin.* REPRESENTATIVES (Democrats, 10): *John McDuffie, John R. Tyson, Henry B. Steagall, Lamar Jeffers, William B. Bowling, William B. Oliver, Lilius B. Rainey, Edward B. Almon, George Huddleston, William B. Bankhead.*

ARIZONA.—SENATORS: *Henry F. Ashurst, Ralph H. Cameron.* REPRESENTATIVE (Democrat, 1): At large, *Carl Hayden.*

ARKANSAS.—SENATORS: *Joseph T. Robinson, T. H. Caraway.* REPRESENTATIVES (Democrats, 7): *William J. Driver, William A. Oldfield, John N. Tillman, Otis Wingo, H. M. Jacoway, Chester W. Taylor, Tilman B. Parks.*

CALIFORNIA.—SENATORS: *Hiram W. Johnson,* Samuel M. Shortridge.* REPRESENTATIVES (Republicans, 9; Democrats, 2): *Clarence F. Lea, John E. Raker, Charles F. Curry, Julius Kahn, John I. Nolan, John A. Elston, Henry E. Barbour, Arthur M. Free, Walter F. Lineberger, Henry Z. Osborne, Philip D. Swing.*

COLORADO.—SENATORS: *Lawrence C. Phipps, Samuel D. Nicholson.* REPRESENTATIVES (Republicans, 3; Democrat, 1): *William N. Vaile, Charles B. Timberlake, Guy U. Hardy, Edward T. Taylor.*

CONNECTICUT.—SENATORS: *Frank B. Brandegee, George P. McLean.* REPRESENTATIVES (Republicans, 5): *E. Hart Fenn, Richard P. Freeman, John Q. Tilson, Schuyler Merritt, James P. Glynn.*

DELAWARE.—SENATORS: *L. Heisler Ball, T. Coleman duPont.* REPRESENTATIVE (Republican, 1): At large, *Caleb R. Layton.*

FLORIDA.—SENATORS: *Duncan U. Fletcher, Park Trammell.* REPRESENTATIVES (Democrats, 4): *Herbert J. Drane, Frank Clark, John H. Smithwick, William J. Sears.*

GEORGIA.—SENATORS: *William J. Harris, Thomas E. Watson.* REPRESENTATIVES (Democrats, 12): *James W. Overstreet, Frank Park, Charles R. Crisp, William C. Wright, William D. Upshaw, James W. Wise, Gordon Lee, Charles H. Brand, Thomas M. Bell, Carl Vinson, William C. Lanford, William W. Larsen.*

IDAHO.—SENATORS: *William E. Borah, Frank R. Gooding.* REPRESENTATIVES (Republicans, 2): *Burton L. French, Addison T. Smith.*

ILLINOIS.—SENATORS: *Medill McCormick, William B. McKinley.* REPRESENTATIVES (Republicans, 23; Democrats, 3; Vacancy, 1): At large, *Richard Yates.* Martin B. Madden, James R. Mann, Elliott W. Sprout, John W. Rainey, *Adolph J. Sabath, John J. Gorman, M. Alfred Michaelson, Stanley H. Kuns, Fred A. Britten, Carl R. Chindblom, Ira C. Copley, Charles E. Fuller, John C. McKensie, William J. Graham, Edward J. King, Clifford Ireland, Frank H. Funk, Joseph G. Cannon, Allen P. Moore, Guy L. Shaw, Loren E. Wheeler, William A. Rodenberg, Edwin B. Brooks, Thomas S. Williams, Edward E. Denison.*

INDIANA.—SENATORS: *James E. Watson, Harry S. New.* REPRESENTATIVES (Republicans, 13): *Oscar R. Luhring, Oscar E. Bland, James W. Dunbar, John S. Benham, Everett Sanders, Richard N. Elliott, Merrill Moore, Albert H. Vestal, Fred S. Purnell, William R. Wood, Milton Kraus, Louis W. Fairfield, Andrew J. Hickey.*

IOWA.—SENATORS: *Albert B. Cummins, William S. Kenyon.* REPRESENTATIVES (Republicans, 11): *William F. Kopp, Harry E. Hull, Burton E. Sweet, Gilbert N. Haugen, Cyrenus Cole, C. William Ramseyer, Cassius C. Dowell, Horace M. Towner, William R. Green, L. J. Dickinson, William D. Boies.*

KANSAS.—SENATORS: *Charles Curtis, Arthur Capper.* REPRESENTATIVES (Republicans, 8): *Daniel R. Anthony, Jr., Edward C. Little, Philip P. Campbell, Homer Hoch, James G. Strong, Hays B. White, J. N. Tinscher, Richard E. Bird.*

KENTUCKY.—SENATORS: *A. Owsley Stanley, Richard P. Ernst.* REPRESENTATIVES (Republicans, 3; Democrats, 8): *Alben W. Barkley, David H. Kincheloe, Robert Y. Thomas, Jr., Ben Johnson, Charles F. Ogden, Arthur B. Rouse, James C. Cantrill, Ralph Gilbert, William J. Fields, John W. Langley, John M. Robison.*

LOUISIANA.—SENATORS: *Joseph E. Ransdell, Edwin S. Broussard.* REPRESENTATIVES (Democrats, 8): *James O'Connor, H. Garland Dupre, Whitwell P. Martin, John N. Sandlin, Riley J. Wilson, George K. Favrot, Ladislav Lassar, James B. Aswell.*

MAINE.—SENATORS: *Bert M. Fernald, Frederick Hale.* REPRESENTATIVES (Republicans, 4): *Carroll L. Beedy, Wallace H. White, Jr., John A. Peters, Ira G. Hersey.*

MARYLAND.—SENATORS: *Joseph I. France, O. E. Weller.* REPRESENTATIVES (Republicans, 4; Democrats, 2): *T. Alan Goldsborough, Albert A. Blakeney, John Philip Hill, J. Charles Linthum, Sydney E. Mudd, Frederick N. Zihlman.*

MASSACHUSETTS.—SENATORS: Henry Cabot Lodge, David I. Walsh. REPRESENTATIVES (Republicans, 14; Democrats, 2): Allen T. Treadway, Frederick H. Gillett, Calvin D. Paige, Samuel E. Winslow, John Jacob Rogers, A. Piatt Andrew, Robert S. Maloney, Frederick W. Dallinger, Charles L. Underhill, Peter F. Tague, George Holden Tinkham, James A. Gallivan, Robert Luce, Louis A. Frothingham, William S. Greene, Joseph Walsh.

MICHIGAN.—SENATORS: Charles E. Townsend, Truman H. Newberry. REPRESENTATIVES (Republicans, 13): George P. Codd, Earl C. Michener, J. M. C. Smith, John C. Ketcham, Carl E. Mapes, Patrick H. Kelley, Louis C. Cramton, Joseph W. Fordney, James C. McLaughlin, Roy O. Woodruff, Frank D. Scott, W. Frank James, Vincent M. Brennan.

MINNESOTA.—SENATORS: Knute Nelson, Frank B. Kellogg. REPRESENTATIVES (Republicans, 10): Sydney Anderson, Frank Clague, Charles R. Davis, Oscar E. Keller, Walter H. Newton, Harold Knutson, Andrew J. Volstead, Oscar J. Larson, Halvor Steenerson, Thomas D. Schall.

MISSISSIPPI.—SENATORS: John Sharp Williams, Pat Harrison. REPRESENTATIVES (Democrats, 8): John E. Rankin, B. G. Lowrey, Benjamin G. Humphreys, Thomas U. Sisson, Ross A. Collins, Paul B. Johnson, Percy E. Quin James, W. Collier.

MISSOURI.—SENATORS: James A. Reed, Selden P. Spencer. REPRESENTATIVES (Republicans, 14; Democrats, 2): Frank C. Millsap, William W. Rucker, Henry F. Lawrence, Charles L. Faust, Edgar C. Ellis, William O. Atkeson, Roscoe C. Patterson, Sidney C. Roach, Theodore W. Hukriede, Cleveland A. Newton, Harry B. Hayes, Leonidas C. Dyer, Marion E. Rhodes, Edw. D. Hays, Isaac V. McPherson, Samuel A. Shelton.

MONTANA.—SENATORS: Henry L. Myers, Thomas J. Walsh. REPRESENTATIVES (Republicans, 2): Washington J. McCormick, Carl W. Riddick.

NEBRASKA.—SENATORS: Gilbert M. Hitchcock, George W. Norris. REPRESENTATIVES (Republicans, 6): C. Frank Reavis, Albert W. Jefferis, Robert E. Evans, Melvin O. McLaughlin, William E. Andrews, M. P. Kinkaid.

NEVADA.—SENATORS: Key Pittman, Tasker L. Oddie. REPRESENTATIVES (Republican, 1): At large, Samuel S. Arents.

NEW HAMPSHIRE.—SENATORS: George H. Moses, Henry W. Keyes. REPRESENTATIVES (Republicans, 2): Sherman E. Burroughs, Edward H. Wason.

NEW JERSEY.—SENATORS: Joseph S. Frelinghuysen, Walter E. Edge. REPRESENTATIVES (Republicans, 11; Democrat, 1): Francis F. Patterson, Jr., Isaac Bacharach, T. Frank Appleby, Elijah C. Hutchinson, Ernest R. Ackerman, Randolph Perkins, Amos H. Radcliffe, Herbert W. Taylor, Richard Wayne Parker, Frederick R. Lehlbach, Archibald E. Olpp, Charles F. X. O'Brien.

NEW MEXICO.—SENATORS: Andrews A. Jones, Holm O. Bursum. REPRESENTATIVE (Republican, 1): At large, Nestor Montoya.

NEW YORK.—SENATORS: James W. Wadsworth, Jr., William M. Calder. REPRESENTATIVES (Republicans, 33; Democrats, 9; Socialist, 1): Frederick C. Hicks, John J. Kindred, John Kissel, Thomas H. Cullen, Ardolph L. Kline, Warren I. Lee, Michael J. Hogan, Charles G. Bond, Andrew N. Petersen, Lester D. Volk, Daniel J. Riordan, MEYER LONDON, Christopher D. Sullivan, Nathan D. Perlman, Thomas J. Ryan, W. Bourke Cockran, Ogden L. Mills, John F. Carey, Walter M. Chandler, Isaac Siegel, Martin C. Ansoorge, Anthony J. Griffin, Albert B. Rosedale, Benjamin L. Fairchild, James W. Husted, Hamilton Fish, Jr., Charles B. Ward, Peter G. Ten Eyck, James S. Parker, Frank Crowther, Bertrand H. Snell, Luther W. Mott, Homer P. Snyder, John D. Clarke, Walter W. Magee, Norman J. Gould, Alanson B. Houghton, Thomas B. Dunn, Archie D. Sanders, S. Wallace Dempsey, Clarence MacGregor, James M. Mead, Daniel A. Reed.

NORTH CAROLINA.—SENATORS: Furnifold M. Simmons, Lee S. Overman. REPRESENTATIVES (Democrats, 10): Hallett S. Ward, Claude Kitchin, Samuel M. Brinson, Edward W. Pou, Charles M. Stedman, Homer L. Lyon, William C. Hammer, Robert L. Doughton, Alfred L. Bulwinkle, Zebulon Weaver.

NORTH DAKOTA.—SENATORS: Porter J. McCumber, Edwin F. Ladd. REPRESENTATIVES (Republicans, 5): Olger B. Burnetts, George M. Young, James H. Sinclair.

OHIO.—SENATORS: Atlee Pomerene, Frank B. Willis. REPRESENTATIVES (Republicans, 22): Nicholas Longworth, A. E. B. Stephens, Roy G. Fitzgerald, John L. Cable, Charles J. Thompson, Charles C. Kearns, Simeon D. Fess, R. Clint Cole, William W. Chalmers, Israel M. Foster, Edwin D. Ricketta, John C. Speaks, James T. Begg, Charles L. Knight, C. Ellis Moore, Joseph H. Himes, Wm. M. Morgan, Frank Murphy, John G. Cooper, Miner G. Norton, Harry C. Gahn, Theodore E. Burton.

OKLAHOMA.—SENATORS: Robert L. Owen, John W. Harrel. REPRESENTATIVES (Republicans, 5; Democrats, 3): Thomas A. Chandler, Alice M. Robertson, Charles D. Carter, J. C. Pringle, F. B. Swanik, L. M. Gensman, James V. McClinic, Manuel Herrick.

OREGON.—SENATORS: Charles L. McNary, Robert N.

Stanfield. REPRESENTATIVES (Republicans, 3): Willis C. Hawley, Nicholas J. Sindott, Clifton N. McArthur.

PENNSYLVANIA.—SENATORS: Boies Penrose, William E. Crow. REPRESENTATIVES (Republicans, 35; Democrat, 1): At large, William J. Burke, Thomas S. Crago, Joseph McLaughlin, Anderson H. Walters. William S. Vane, George B. Graham, Harry C. Ransley, George W. Edmonds, James J. Connolly, George P. Darrow, Thomas S. Butler, Henry W. Watson, W. W. Griest, Charles R. Connell, Clarence D. Coughlin, John Reber, Fred B. Gerner, Louis T. McFadden, Edgar R. Kiess, I. Clinton Kline, Benjamin K. Focht, Aaron S. Kreider, John M. Rose, Edward S. Brooks, Evan J. Jones, Adam M. Wyant, Samuel A. Kendall, Henry W. Temple, Milton W. Shreve, William H. Kirkpatrick, Nathan L. Strong, Harris J. Bixler, Stephen G. Porter, M. Clyde Kelly, John M. Morin, Guy E. Campbell.

RHODE ISLAND.—SENATORS: LeBaron B. Colt, Peter G. Gerry. REPRESENTATIVES (Republicans, 3): Clark Burdick, Walter R. Stines, Ambrose Kennedy.

SOUTH CAROLINA.—SENATORS: Ellison D. Smith, Nathaniel B. Dial. REPRESENTATIVES (Democrat, 7): W. Turner Logan, James F. Byrnes, Fred H. Dominick, John J. McSwain, William F. Stevenson, Philip H. Stoll, Hampton P. Fulmer.

SOUTH DAKOTA.—SENATORS: Thomas Sterling, Peter Norbeck. REPRESENTATIVES (Republicans, 3): Charles A. Christopherson, Royal C. Johnson, William Williamson.

TENNESSEE.—SENATORS: John K. Shields, Kenneth McKellar. REPRESENTATIVES (Republicans, 5; Democrats, 5): B. Carroll Reese, J. Will Taylor, Joe Brown, Wynne F. Clouse, Edwin L. Davis, Joseph W. Byrns, Lemuel P. Padgett, Lon A. Scott, Finis J. Garrett, Hubert F. Fisher.

TEXAS.—SENATORS: Charles A. Culberson, Morris Sheppard. REPRESENTATIVES (Republican, 1; Democrats, 17): Eugene Black, John C. Box, Morgan G. Sanders, Sam Rayburn, Hutton W. Sumners, Rufus Hardy, Clay Stone Briggs, David E. Garrett, Joseph J. Mansfield, James P. Buchanan, Tom Connolly, Fritz G. Lanham, Lucian W. Parrish, Harry M. Wursbach, John N. Garner, C. B. Hudspeth, Thomas L. Blanton, Marvin Jones.

UTAH.—SENATORS: Reed Smoot, William H. King. REPRESENTATIVES (Republicans, 2): Don B. Colton, Elmer O. Leatherwood.

VERMONT.—SENATORS: William P. Dillingham, Carroll S. Page. REPRESENTATIVES (Republicans, 2): Frank L. Greene, Porter H. Dale.

VIRGINIA.—SENATORS: Claude A. Swanson, Carter Glass. REPRESENTATIVES (Republican, 1; Democrats, 9): Schuyler Otis Bland, Joseph T. Deal, Andrew J. Montague, Patrick H. Drewry, J. M. Hooker, James P. Woods, Thomas W. Harrison, R. Walton Moore, C. Bascom Slemp, Henry D. Flood.

WASHINGTON.—SENATORS: Wesley L. Jones, Miles Poindexter. REPRESENTATIVES (Republicans, 5): John F. Miller, Lindley H. Hadley, Albert Johnson, John W. Summers, J. Stanley Webster.

WEST VIRGINIA.—SENATORS: Howard Sutherland, Davis Elkins. REPRESENTATIVES (Republicans, 6): Benjamin L. Rosenbloom, George M. Bowers, Stuart F. Reed, Harry C. Woodyard, Wells Goodkykoonts, Leonard S. Echols.

WISCONSIN.—SENATORS: Robert M. La Follette, Irvine L. Lenroot. REPRESENTATIVES (Republicans, 11): Henry Allen Cooper, Edward Voigt, John M. Nelson, John C. Kleckas, William H. Stafford, Florian Lampert, J. D. Beck, Edward E. Browne, David G. Classon, James A. Frear, Adolphus P. Nelson.

WYOMING.—SENATORS: Francis E. Warren, John B. Kendrick. REPRESENTATIVE (Republican, 1): At large, Frank W. Mondell.

ALASKA.—Dan A. Sutherland.

HAWAII.—J. Kuhio Kalaniana'ole.

PHILIPPINES.—Jaime C. De Veyra, Isauro Gabaldon.

PORTO RICO.—Felix Cordova Davila.

CLASSIFICATION

SENATE	HOUSE
Republicans.....59	Republicans.....301
Democrats.....38	Democrats.....132
Republican and Progressive.....1	Socialist.....1
	Vacancy.....1
Total.....96	Total.....435

ADMINISTRATION

THE INAUGURATION. The President was inaugurated on March 4. In his inaugural address he emphasized mainly the need of a return to normal conditions; and of maintaining a policy that would keep the United States from being entangled in European affairs, saying that the inherited policy in this respect had proved itself wise, and adapted to the material and spiritual

progress of the republic. The United States was confident of its ability to work out its own destiny, and did not seek any part in directing the destiny of the Old World. "We do not mean to be entangled. We will accept no responsibility except as our own conscience and judgment in each instance may determine."

CABINET. The following members of the cabinet were nominated and promptly confirmed by the Senate in special session: Secretary of State, Charles Evans Hughes of New York; Secretary of the Treasury, Andrew W. Mellon of Pennsylvania; Secretary of War, John W. Weeks of Massachusetts; Secretary of the Navy, Edwin Denby of Michigan; Secretary of Commerce, Herbert C. Hoover of California; Secretary of Labor, James J. Davis of Indiana; Secretary of Agriculture, Henry C. Wallace of Iowa; Secretary of the Interior, Albert B. Fall of New Mexico; Attorney-General, Harry M. Daugherty of Ohio; Postmaster-General, Will H. Hays of Indiana.

DIPLOMATIC SERVICE. The following diplomatic appointments were made early in the administration, and confirmed by the Senate: Ambassador to Great Britain, George Harvey; Ambassador to France, Myron T. Herrick; Ambassador to Italy, Richard Washburn Child; Minister to Chile, William M. Collier; Minister to China, Jacob Gould Schurman; minister to Roumania, Peter Augustus Jay; Minister to Salvador, Montgomery Schuyler. A new regulation was announced, March 24, requiring the dismissal from the diplomatic service of all non-American attachés. In the autumn eight new diplomatic appointments were made, namely, Lewis Einstein of New York, Minister to Czecho-Slovakia; Edward E. Brodie of Oregon, Minister to Siam; Charles L. Kagey of Kansas, Minister to Finland; Roy Davis of Missouri, Minister to Guatemala; Charles S. Wilson of Maine, Minister to Bulgaria; Dr. John Glover South of Kentucky, Minister to Panama; John E. Ramer of Colorado, Minister to Nicaragua; Willis C. Cook of South Dakota, Minister to Venezuela. See above under *Embassies and Legations of the United States*.

UNITED STATES SHIPPING BOARD. The special House Committee appointed to investigate the activities of the United States Shipping Board made its report, March 2. In this it was recommended that the duties of the Shipping Board should be transferred to an executive department. As to the work of the Board as a whole, the Committee commended it, saying that in respect to the number of ships built and the time within which they were delivered, it was the most remarkable achievement in shipbuilding ever accomplished. While the Committee reported a certain amount of waste, it believed this was due to war conditions. The committee recommended that the surplus ships should be sold without delay. See SHIPPING.

RAILROAD LABOR BOARD. On April 14 the Railroad Labor Board ordered the abrogation of the labor agreements which defined the working conditions on the railroads that had been under Federal control. This decision involved the reference of disputes over rules and working conditions to a conference between each road and its employees. In arguments before the Railroad Labor Board presented by the railroad unions on the one hand and the operators on the other it was charged by the former that the roads had suffered

serious loss owing to poor equipment and extravagant management, while the latter claimed that the bad financial conditions of the roads was due to the large increases in wages. The Railroad Labor Board decided on June 1 to order a reduction in wages by an average of 12 per cent to go into effect July 1. This affected thirty-one labor organizations in the employ of over one hundred railroads, and was said to reduce the annual pay rolls of the roads by about \$400,000,000. See RAILWAYS.

TREATY WITH GERMANY. For an account of the disputes over the question of a separate treaty with the Central Powers, see preceding issues of the YEAR BOOK. The long-standing discussion of this subject brought out strenuous opposition in both political parties to a separate peace with Germany, which was held to be an act of infidelity to the Allies. These objections, however, gradually disappeared and in August the treaty was framed and submitted to Germany. It was signed at Berlin August 25, the American representative being Mr. Ellis Loring Dresel. The text of the treaty was then made public. It was not long because it was based on other documents to which it referred, namely, the armistice of Nov. 11, 1918, the Treaty of Versailles, June 28, 1919, and the joint resolution declaring the end of the war, passed by Congress and approved by President Harding, July 2, 1921. The last-named resolution expressly reserved to the United States and its citizens whatever rights or advantages had been accorded to them by the armistice, by the Versailles Treaty, or as the result of the war. Germany accepted in the treaty the reservations of this joint resolution and the applications of the sections or paragraphs of the Versailles Treaty to which reference is made. The treaty declares that the United States is not bound by any of the provisions of the Versailles Treaty that relate to the League of Nations, or committed by any subsequent actions of the League unless the United States should expressly give its assent; and that while the United States was privileged to take part in the work of the Reparations Commission, it was under no obligations to do so. The treaty was signed just after the beginning of the recess of Congress which ended September 21.

THE SIMS CONTROVERSY. The history of the dispute arising from the charges made by Admiral Sims against the policy of the Navy Department during the war was recounted in the last YEAR BOOK. The testimony taken in the various hearings before the Senate Naval Committee was voluminous and the decision was not rendered until July, 1921. There were majority and minority reports expressing opposed views. The majority report censured severely the former Secretary of the Navy, Mr. Daniels, ex-President Wilson, and Admiral Benson, former chairman of the United States Shipping Board. As to Admiral Sims' principal charge that administrative delays caused the loss of half a million lives and fifteen billion dollars, the majority report said that it was impossible to escape the conclusion that but for these delays the American Expeditionary Forces might have won the victory earlier than they did. The report further declared that the administration had not as its principal motive after the entry of the United States into the war the execution of every measure possible toward winning the victory, but rather concerned itself

with the future of the United States apart from the Allies in case the Allies should be defeated. The minority report pronounced Admiral Sims' charge monstrous and without foundation, saying that the evidence proved that the American army had been transported as fast as it was ready. It admitted that a few charges appeared to be justified, but that they were so trivial as compared with the vast work carried out by the navy during the war as hardly to deserve consideration.

WEST VIRGINIA LABOR DISTURBANCES. For two years the efforts to unionize the coal fields in Mingo county, West Virginia, had caused a bitter struggle between operators and miners. On August 20 the miners and their supporters gathered in the neighboring counties for the avowed purpose of entering Mingo county and obliging the men to join the unions. They were reported to be armed, and the number was placed as high as 10,000. The operators on their side were supported by bands of hired detectives. Shooting affrays occurred, and the counties of Kanawha, Boone, Fayette, and Logan were in a state of disturbance as well as Mingo. State and citizen forces were hastily got together to oppose the miners, and finally the danger became so threatening that the governor called on the Federal government for help. President Harding issued a proclamation, August 30, ordering the insurgents to disperse by noon, September 1. The order was disregarded. But a small body of Federal troops having been sent into the disturbed area, the trouble subsided instantly and with practically no resistance. By September 10, peace was fully restored, and a number of the troops had been ordered back to their quarters.

STATE BONUS ACTS. On August 31 the New York State Bonus Act was declared unconstitutional by the State Court of Appeals. New York was the first State to take this course. In nine States bond issues had been sold amounting to \$69,500,000, and in eight other State issues of \$191,500,000 were awaiting public approval before going into effect. In twenty-one other States laws were pending which provided for issues amounting to \$370,939,200.

UNEMPLOYMENT CONFERENCE. The conference on unemployment began its sessions at Washington, September 26, with a brief address of the President who then turned the proceedings over to Secretary Hoover. After deliberations, the meeting recommended on September 30 an emergency programme for immediate relief of the unemployed, who were estimated at between 3,500,000 and 5,000,000. The chief points in it were that private houses, offices, etc., should have their repairs, alterations, and cleaning done during the winter; that the municipalities should undertake public works to the greatest extent possible in the circumstances and on this point it was taken as a sign that circumstances were favorable to this course; that a larger amount of municipal bonds, namely, \$700,000,000, had been sold in 1921 than ever before. It was further recommended that each governor should unite all the State agencies and to do his utmost to expedite such public works as could, with advantage, be carried out. That the Federal authorities should also do so; that a Congressional appropriation for roads, together with State appropriations already made, should be employed for this purpose; that immediate relief could best be offered in the construction

industry which had been artificially restricted during and since the war. Besides these recommendations for immediate emergency, a programme was to be formulated, October 11, containing the following chief features: Readjustment of railway rates on a fairer basis; speedy completion of the tax bill with its reduction of taxes; settlement of tariff questions and of the financial relation between the government and the railways; limitation of world armament; stabilization of exchange; measures for the elimination of waste; measures for hastening the recovery of industry; and many other recommendations of this general nature.

PANAMA TOLLS. The Borah bill which gave the American coastwise shipping the right of free passage through the Canal was passed by the Senate, October 10, by a vote of 47 to 37, after a final debate of five hours. The bill was attacked on the floor by the Republican leader, Senator Lodge, while the Democratic leader, Senator Underwood, supported it. The vote broke through party lines, 35 Republicans and 12 Democrats voting for it and 20 Democrats and 17 Republicans voting against it. It was attacked on the ground that it was an unwise and unsound policy and that although it might be technically legal it was a sign of bad faith. On the other hand its supporters held that its purposes were chiefly domestic in character and were therefore not the concern of other nations.

WAR TIME LEGISLATION. The question of the ultimate disposal of German property was discussed at a meeting between President Harding and the Alien Property Custodian. The latter said that according to the peace treaty with Germany property now in the hands of the custodian would be held until provision was made by Germany and Austria for satisfying the claims of American citizens against those governments before the entry of the United States into the war. The largest single group of claims arose from the sinking of the *Lusitania*. The property involved consisted of industrial establishments which were being operated under the Custodian and also of many millions of dollars' worth of securities which, however, on account of the state of the market were at a low figure. The treaty with Germany also affected various other war and emergency measures and in the summer time a report on the subject was in progress. There were still various war time laws and resolutions which had not been repealed and the situation in this respect was confused. See above under *Congress*.

RAILROAD STRIKE. The threat of a railroad strike in October caused consternation throughout the country and was the main subject of discussion during the month, but on October 27 the heads of the unions canceled the strike orders after a conference in Chicago between the union leaders and the Railway Labor Board.

THE REVENUE BILL. The Senate passed the Revenue bill, November 8, which then went to a conference committee of the Senate and the House for the harmonizing of the differences between it and the House measure. The Senate bill repealed the excess profits tax and all transport taxes, beginning from Jan. 1, 1922, and reduced surtax rates on individual incomes, fixing the maximum at 50 per cent instead of 65 per cent. It contained a novel feature in a graded tax on all gifts of money or property in excess of \$20,000.



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SENATOR BOIES PENROSE

TWO REPUBLICAN LEADERS WHO DIED IN 1921



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SENATOR PHILANDER KNOX



The attempt to provide for a soldiers' bonus failed, as did also a proposal made by Senator Smoot for a 3 per cent manufacturer's levy, a 10 per cent corporation tax, a 32 per cent maximum individual surtax rate, and tax on capital stock. Among the specific features of the Senate bill was the repeal of taxes on parcel post packages, toilet articles, proprietary medicines, insurance premiums, moving picture films, ice cream, chewing gum, sporting goods, etc. On incomes of \$5000 or less the exemption was increased by \$500 for the head of the family and \$200 for each dependent. The corporation income tax and the taxes on large estates and medicinal liquors were increased from 10 per cent to 15 per cent. The reduction of income taxes by the Senate measure was criticised as insufficient and as not preventing wealthy citizens from taking shelter in securities that were exempt from taxation. So far as the higher incomes were concerned, it reduced the existing tax of \$170 on incomes of \$6000 to \$160; the existing tax of \$590 on incomes of \$10,000 to \$520; the existing tax of \$2880 on incomes of \$25,000 to \$2560; the existing tax of \$31,190 on incomes of \$100,000 to \$30,140, etc.

NOVEMBER ELECTIONS. The general result of the elections indicated a favorable attitude toward the administration whose strength appeared to be greater than the year before. The contests were mainly local and the most conspicuous one was that of the municipal election in New York City. See **NEW YORK**. In Kentucky where State elections were held the Democrats returned majorities in both branches of the new legislature. In Virginia the campaign for governor resulted in the victory of Mr. E. Lee Trinkle, the Democratic candidate. In Maryland the Democrats elected the legislature and a State Controller and carried the city of Baltimore. In New Jersey the Republicans gained strong majorities in both houses of the legislature. A significant municipal election was that of Cleveland which resulted in a majority for the city manager form of government. (See **MUNICIPAL GOVERNMENT**.) In Ohio the voters authorized a bonus of \$25,000,000 for ex-service men. In the western States the most important change occurred in North Dakota, which had hitherto been under control of the Non-Partisan League. See **NORTH DAKOTA**.

POLITICAL AMNESTY. It was learned on December 23 that the President had commuted the sentences of twenty-four political prisoners, including Eugene V. Debs, who had been convicted under the Espionage and other wartime acts and served sentences in prison. The case of Debs was a matter of national interest and wide discussion involving sharp differences of opinion. There was no question of his technical guilt under the law for he had purposely obstructed the draft and had admitted so doing in his trial, but he had never advocated the violent measures or taken the extreme courses that many others had done. About one-third of the prisoners belonged to the I. W. W. The Debs' case may be briefly summarized as follows: He made a speech at Canton, Ohio, June 16, 1918, which was interpreted as a direct attempt to interfere with recruiting. He offered no evidence in his own defense, but sought to justify his action on principle. His friends began measures on his behalf from the first. His case was carried to the Supreme Court, and a conviction on one count was affirmed, March 10,

1919. An attempt to secure a rehearing in April failed. After that the friends of Debs made frequent appeals to President Wilson, but in vain. Attorney-General Palmer toward the end of the Wilson term appealed to the President for the pardon of Debs, but the latter again refused. Renewed efforts were made on Debs' behalf after President Harding assumed office. Debs was called to Washington soon afterwards for a conference with the Attorney-General. His conduct in prison won him the praise of the prison warden, and he was described as a model prisoner and an influence for good. He had been placed first at the Moundsville prison in West Virginia, but after two months was transferred to the Atlanta Penitentiary. For an account of the Disarmament Conference and the relations of the United States with Foreign Powers, see **WAR OF THE NATIONS**. See also **HARTI**; **DOMINICAN REPUBLIC**; **MEXICO**.

UNITED STATES MILITARY ACADEMY. A government institution for the practical and theoretical training of cadets for the military service of the United States; situated at West Point, N. Y.; opened in 1802. At the beginning of the academic year, Sept. 1, 1921, the total number of cadets at the Academy was 1263, divided as follows:

First Class, 103; Second Class, 297; Third Class, 453; Fourth Class, 410. The commissioned personnel (faculty) totaled 197. The library contained about 108,000 volumes. The Academy being a component part of the Regular Army of the United States is maintained entirely by Army appropriations. The amount appropriated by Congress in the Military Academy Bill, covering the period from July 1, 1921, to June 30, 1922, was \$2,357,259.80. The Superintendent repeated his recommendation of the preceding year that the corps of cadets be expanded to a strength of 2500 and submitted plans and estimates for the necessary construction, of which the cost was estimated at \$6,000,000. He pointed out that "the basic idea which led to the foundation of the Military Academy was the desire to have a nucleus to train the great body of our citizens in time of emergency rather than to be forced to keep large bodies of men continually under arms. Over a century ago, with a population of scarcely more than five millions of people, the American government authorized a cadet corps of over two hundred and fifty. To-day with that population increased twenty fold the number of cadets in training is scarcely four times the original number authorized. With the passage of time the splendid nucleus of veterans of the World War will go, and a wise policy should be prepared to fill the gaps as they occur. The larger the number of men throughout the country educated for war the smaller need be the actual number held in continuous readiness." Superintendent in 1921, Brigadier-General Douglas MacArthur.

UNITED STATES NAVAL ACADEMY. A school for the training and education of naval cadets at Annapolis, Md.; founded in 1845. The students at the academy are styled midshipmen, and under the present law each Senator, Representative, and Delegate in Congress is allowed five appointments. Five appointments are also allowed from the District of Columbia, and fifteen each year from the United States at large, which are made by the President. The law also authorizes the appointment of one hundred

enlisted men each year by the Secretary of the Navy, who are selected from the Regular Navy and Marine Corps as a result of competitive examination. The number of midshipmen, by classes at the Naval Academy, Oct. 1, 1921, the beginning of the academic year 1921-22, were as follows: First Class, 546; Second Class, 451; Third Class, 671; Fourth Class, 759; total, 2427. On Oct. 1, 1921, there were 314 officers and instructors in the various academic departments. The library contained about 60,000 volumes. Superintendent, Rear-Admiral Henry B. Wilson, United States Navy, who assumed command, July 5, 1921.

UNIVERSALISTS. In 1921 this denomination had a church membership of 60,000, and Sunday school enrollment of 40,000. The active ministers of the church numbered 320 and church organizations 650. Last year the denomination celebrated its 150th anniversary of the founding of the Universalist Church in America at Good Luck, N. J. The year 1921 was marked by a considerable increase in members as result of "The Murray Anniversary Crusade" commenced in 1919 to double the membership of the preaching and teaching of many other churches. The church conducts extensive missionary work in Japan and an increase in contributions of 93 per cent for this work was reported in 1921. The amount spent for missions there was \$30,317.30, and for home missions, \$25,845.71. A building to be used as a new home for missionaries in Tokyo, Japan, was dedicated during the year. Home missionary work is being done in the West and South where there are few Universalist churches at the present time. The Women's National Missionary Association of the denomination unites the women in both Home and Foreign Missions. Theological schools are maintained as follows: Crane Theological School, Tufts College, Mass., Canton Theological School, St. Lawrence University, Canton, N. Y., and Ryder Divinity School, Chicago, Ill. Educational work is conducted at secondary schools as follows: Dean Academy, Franklin, Mass., Goddard Seminary, Barre, Vt., Westbrook Seminary, Portland Maine, and a school for negroes at Suffolk, Va. Headquarters for the denomination are maintained at 176 Newbury Street, Boston, Mass., Rev. Roger F. Etz is Secretary.

UNIVERSITIES AND COLLEGES. The United States Bureau of Education announced that the attendance at universities, colleges, and professional schools for 1920-21 reached 450,000. This was a gain of 36 per cent over the attendance in 1917-18. Foreign students in American colleges during 1920-21 numbered 6900. China led with 1443 students, and Canada was second with 1294. Other countries were as follows: Japan, 525; South American countries, 563; Russia, 290; and India, 235. Complete data for 1921-22 regarding attendance in colleges and universities were not available for all of the institutions. Raymond Welters, Secretary of the American Society of College Registrars, reported the registration figures for certain institutions. The detailed reports received from 30 typical universities indicated an increase in enrollment over the previous year. The gain in attendance during the past five years was 55 per cent. It was estimated that the increase in colleges had been about the same. The accompanying table shows the attendance of full-time students and of

students in residence on Nov. 1, 1921, in 25 universities; the rank of universities in point of enrollment is also indicated.

University	Regular students, full-time	Rank	Students, all resident	Rank
California	11,505	1	17,909	2
Columbia	9,793	2	26,006	1
Michigan	9,227	3	10,527	8
Illinois	9,084	4	10,198	9
Minnesota	8,024	5	10,711	7
Ohio State	7,521	6	8,195	12
Pennsylvania	7,445	7	14,030	4
Wisconsin	7,196	8	10,507	8
Harvard	5,671	9	8,080	13
Cornell	5,312	10	8,377	11
Boston	5,246	11	9,215	10
Chicago	4,815	12	12,576	5
Nebraska	4,670	13	5,841	18
Iowa	4,594	14	5,760	19
U. of Washington	4,521	15	6,065	17
Texas	4,463	16	6,236	16
Northwestern	4,220	17	7,523	15
Syracuse	4,070	18	5,183	20
Missouri	3,959	19	4,234	22
Iowa S. C.	3,896	20	3,896	23
Yale	3,710	21	4,041	24
Kansas	3,649	22	4,265	21
Mass. Inst. Tech.	3,505	23	3,505	25
Fordham	3,435	24	3,760	24
Pittsburg	3,182	25	7,568	14
C. City N. Y.	2,107	..	15,362	3
New York Univ.	..	..	11,514	6

Registration facts indicated that the Massachusetts Institute of Technology with an enrollment of 3505 led in engineering students. The largest law schools were Harvard, 999; Columbia, 643; California, 431; Michigan, 375; Texas, 323. The largest schools of medicine were Michigan, 609; Harvard, 472; Northwestern, 460; Pennsylvania, 438; Tulane University, 381. The largest schools of journalism were Wisconsin, 259; Missouri, 218; Columbia, 138. There were decreases in enrollment in agricultural colleges, departments of architecture, schools of dentistry, and schools veterinary medicine. Attendance at summer schools for 1921 showed a gain of 32 per cent over that for 1920. The total in 241 universities and degree-granting colleges for 1921 was 147,032. The ten largest summer schools were as follows: Columbia, 11,809; California, 7864; Chicago, 6458; Wisconsin, 4547; College of City of New York, 3300; Colorado, 3264; Michigan, 2797; Cornell, 2739; Minnesota, 2687; Texas, 2588.

The increase in students was causing various institutions to consider measures for limiting attendance. Vassar announced that registration was limited to 1000 and that the registration books were closed until the Fall of 1927. Princeton announced plans to limit its students to 2000. Other institutions also announced plans to limit enrollments and in some few cases there was an increase in entrance requirements, and a raising of standards. It is significant that, in general, the institutions were considering the question from the educational rather than from the financial side. The remarkable response that had been given to the call for endowments seem to indicate that the financial part could be met, but the lack of trained instructors, and the various problems involved in the management of large student bodies were not so easily settled. There were reports of single college classes having 1000 students, while classes of 300 to 500 in summer schools were common. How such classes might be managed so as to furnish real instruction to the

individual student was a problem that had not been successfully solved.

One of the most interesting developments in college financing is found at Goucher College, Baltimore. The reports of the institution indicated that in 1914 the cost of instruction was \$700 per student while the tuition charge was \$150. The tuition fees were raised to \$225 and a consistent long term economy campaign was conducted. The per capita cost of instruction at the close of the year was now \$226.37. The President of the institution attributed this accomplishment to the reduction of overhead expenses of administration. He said, "This record has not been made at the expense of the Faculty. The highest salary paid our teachers is 100 per cent higher than in 1914, and the average salary, now \$3,300 is 65 per cent higher."

THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING. The Fifteenth Annual Report of the President and Treasurer shows that during the fifteen years of its existence the Carnegie Foundation distributed \$7,964,399 in retiring allowances and pensions to 909 persons. There were operative 356 retiring allowances and 199 widows' pensions, 57 of which were granted during the year, entailing an annual expenditure of \$870,870. The average retiring allowance paid was \$1568. The total resources of the Carnegie Foundation amounted at the close of 1921 to \$24,628,000, of which \$15,192,000 belonged to the permanent general endowment, \$7,571,000 to a reserve fund to be spent in the retirement during the next sixty years of teachers now in associated institutions, \$1,250,000 to the endowment of the Division of Educational Inquiry, and \$390,000 to a reserve fund to be expended in aiding universities and colleges to adopt the new plan of contractual annuities.

The teachers' Insurance and Annuity Association of America, which was established by the Foundation, through a gift of \$1,000,000 to provide insurance and annuity protection for college teachers without overhead charges, had written 653 insurance policies covering \$3,356,747 of insurance and 554 annuity contracts providing \$624,398 annual income at retirement. The report stated that a study was being made with a view to furnishing contractual disability protection. The question of placing insurance without the solicitation of agents and of providing annuities for children were considered. The report contains a list of law schools in the United States classified according to length of course, hours of instruction and entrance requirements. Announcement is also made of the Fourteenth Bulletin of the Division of Educational Inquiry.

The Foundation issued the Fifteenth Bulletin entitled "Training for the Public Profession of the Law." In this study considerable attention is given to the historical development of legal education. It is held that a scheme of professional organization built upon the notion peculiar to this country and to Germany that legal practitioners constitute and ought to constitute a single undivided profession or so-called "bar," irrespective of the different types of training that they have received or the different branches of professional activity in which they are engaged, is a legalistic fiction. The perpetuation of this tradition, in the face of the diversity among law schools and among lawyers that has actually arisen, both works injury

to the schools themselves and hinders the development of bar admission rules that shall prevent incompetents from entering the profession. It is held that the practice of law is a public or political function and says that the practice of other learned professions, such as medicine, is not, and historically it has always been so regarded. The problem of the training and testing of lawyers forms thus a subordinate part of the broad problem of the method of recruiting the civil service, and being a public profession it must be kept accessible to the people. Over half of the existing law schools, including over half of the aggregate number of law school students, offer instruction during the late afternoon or at night. This movement to make law study possible for self-supporting students of average ability is justified on political grounds. The existing grave deficiencies of these schools are largely attributable to the fact that many of the best institutions and best law teachers, influenced by the theory of a unitary bar, regard part-time education as inherently evil. The text ends with a frank acknowledgment of the fact that, as a matter of legalistic tradition, the conception of a unitary bar is too deeply implanted in this country to be soon overturned. As a step toward securing professional and popular recognition of vital distinctions among different types of lawyers, the suggestion is made that in the case of younger applicants for admission to bar associations, the requirements for membership might well be based upon the requirements for graduation already in force in the more advanced group of law schools.

AMERICAN COUNCIL ON EDUCATION. The American Council on Education is the central organization in which the greatest national educational associations are represented. Its general object is to promote and carry out co-operative action in matters of common interest to the associations and to the institutions composing them. It has three classes of members, constituent, associate, and institutional. The constituent members are sixteen national educational associations. Each is represented by three delegates who vote as a unit at meetings of the Council through a designated person. Associate members are educational or scientific organizations having interests related to the work of the Council. Associate members may send one representative each to the meetings of the Council without right to vote. Institutional members are colleges, universities, professional, and technical schools, contributing not less than \$100 a year to the treasury of the Council. Each may be represented by one delegate at meetings of the Council without right to vote. In February, 1921, there were 16 constituent members, 12 associate members, and 122 institutional members. The budget for 1922 provides for the expenditure of \$27,117.61. Among the projects which have received attention on the part of the various committees of the Council are: Federal legislation, international educational relations, education for citizenship, the training of women for public service, the college of liberal arts, and standardization. The Council has been instrumental in bringing about an investigation of the cost of education and of public resources available to support it. The headquarters of the Council are at 818 Connecticut Avenue, Washington, D. C.

GENERAL EDUCATION BOARD. The Annual

Report of the General Education Board, for the year ending June 30, 1921, shows that the total of Mr. John D. Rockefeller's gifts to the Board were \$126,788,094. The capital funds held by the Board amount to \$84,655,652. It appears that in addition to the annual income not less than 33 per cent of its capital has been spent by the Board. On Dec. 18, 1919, Mr. Rockefeller gave \$50,000,000 for the purpose of increasing the salaries of instructors in colleges and universities. The Board has aided 191 institutions by grants totaling \$26,327,000 for whites and \$1,225,000 for negroes. The Report calls attention to the fact that the value of Mr. Rockefeller's gift at present market prices is considerably less than the value of the securities at the time they were presented. "A safe margin must at all times be preserved. The extent to which further gifts can be made will depend upon the sum which can ultimately be realized from the sale of securities." From the general funds the Board appropriated \$1,276,666 to 11 institutions. Since its establishment the Board has aided 207 institutions with appropriations totaling \$48,665,639.06. These institutions have been required to raise \$169,413,004.35. The appropriations for medical schools totaled \$11,936,634.68 for the year. Chief among the items is \$1,000,000 to Columbia University, \$3,000,000 to Johns Hopkins University, and \$5,272,500 to Vanderbilt University. The Board conducted surveys of Public Education in North Carolina and Kentucky. The sum of \$60,000 has also been appropriated to the American Classical League to defray the expenses of a study of classical teaching in the United States.

GIFTS AND BENEFACTIONS. Among the gifts and benefactions to colleges and universities during 1921 were the following: Mrs. Eleanor Alms bequeathed a \$200,000 building to the University of Cincinnati. Dr. William Fletcher King, who was for over forty years its president, bequeathed his entire fortune of \$200,000 to Cornell College, Iowa. Colorado College received a gift of \$100,000 from the estate of Henry R. Wolcott of Denver. Sanford H. Steele bequeathed \$250,000 to Dartmouth for a memorial building to his brother Benjamin H. Steele. Jonathan M. Parmenter left a trust fund of over \$250,000 to establish scholarships in Harvard College. A bequest of \$200,000 to Harvard for the investigation of the origin and cure of cancer was contained in the will of Hiram F. Mills. The Rockefeller Foundation gave \$1,785,000 to Harvard to establish a School of Public Health. Lewis J. Emery offered Hillsdale College \$100,000 on condition that they raise \$500,000 in addition. Massachusetts Institute of Technology is to receive \$1,000,000 and Wellesley College \$500,000 from the estate of Francis Appleton Foster. New York University received a gift of \$150,000 in memory of Dr. A. Alexander Smith from Mrs. Helen Hartley Jenkins. New York University also received \$200,000 from the Carnegie Corporation upon condition that \$800,000 more be raised. A. W. Mellon and his brother R. B. Mellon gave to the University of Pittsburg a plot of land costing \$1,500,000. By the will of Miss Helen Massey the University of Pennsylvania receives the sum of \$500,000 for salaries. Moses Taylor Pyne bequeathed property valued at \$100,000 to Princeton University. R. T. Miller, Jr., gave \$100,000 to Rochester University to establish a loan and scholarship fund. The

University of Redlands received about \$125,000 from the late A. T. Currier of Pomona, Calif. Vanderbilt University received \$3,000,000, the General Education Board and the Carnegie Corporation each giving half. Mr. Edward S. Harkness gave \$100,000 to the Vassar College Salary Endowment Fund. By the will of Rev. Dr. Henry M. Sanders, Vassar College received \$150,000. He also left smaller gifts to other colleges. Mr. Samuel Mather gave \$500,000 to the Medical School of Western Reserve University. Yale University received \$300,000 from William H. Sage for the erection of a Forest Building in memory of his son. Yale University also received \$150,000 in securities, given anonymously, for the Department of Health and from the late Richard M. Colgate, \$100,000 for instruction in the freshman year.

CHANGES IN ORGANIZATION. Several colleges were giving attention to the unusually capable student. Usually such students are able to complete the regular college course in less than four years but they have taken the same work that is offered to the less capable. Barnard College offered a special honors course. According to an announcement from the College this was "an effort to provide for the very ablest students an opportunity to do the best work of which they are capable, and, to that end, to relieve them of a good deal of the ordinary routine of college and some prescribed courses. "Students will not be admitted to the new course until they have demonstrated that they have unusual ability. Ordinarily, they will enter it at the beginning of the sophomore year or of the junior year. "Students in this course are required to take at least four years of college work before receiving the degree of Bachelor of Arts. They may, however, substitute for the usual requirement of 120 points a course of special study in a single subject or a group of related subjects. "We intend this Special Honors Course only for students who know their own minds and who definitely wish to become scholars in a certain field. They will be allowed a much greater chance for specialization than the ordinary student, but we do not think that they will develop into narrow-minded specialists." Smith College announced a similar plan to go into effect in the Spring of 1922. During the past two years Columbia College has been using a new type of examination in one of the courses prescribed for freshmen. This course in Contemporary Civilization is a composite course given by various instructors. The examination is composed of a large number of statements and consists of three parts. In Part I the student is required to indicate whether the statement is true or false. In Part II words are omitted from the statements and the student is required to supply the appropriate word. In Part III the statements include several words or phrases from which the student is required to select the word or phrase that will make the statement most sensible and true. The college authorities state that "this new type of examination is still in the experimental stage. There is no attempt being made to foist it either on students or professors. Interest in it is increasing, and the tests to be given this year are at the request of the instructors in the various subjects, who have worked out the series of questions."

THE INTERCOLLEGIATE LIBERAL LEAGUE. In April, 1921, representatives of twenty-seven

institutions met at Howard University and organized the Intercollegiate Liberal League. The announced purpose is "to bring about the fair and open-minded consideration of social, industrial, political and international questions by groups of college students." "The organization will espouse no creed or principle other than that of complete freedom of assembly and discussion in the college."

UNIVERSITY CENTRE OF RESEARCH IN WASHINGTON. As stated in the articles of organization "the purpose of the University Centre of Research in Washington shall be to promote and facilitate research in archives, libraries and other collections located in the District of Columbia on the part of students in the graduate departments of American and Foreign universities and of others." The activities of the University Centre have for the present been limited to the fields of History, Political Science, Economics, and Statistics, and International Law and Diplomacy. It is expected that later there will be opportunity for investigators in all fields of learning. The University Centre is not an institution in the ordinary sense of the word. It is rather an organization for the purpose of rendering aid, especially information respecting the location of desired material, to investigators in certain fields. There is no charge for the services of the University Centre. The President of the organization is Leo S. Rowe, Ph. D., LL. D., Director General of the Pan-American Union. The Secretary is Samuel P. Capen, Ph. D., LL. D., L. H. D., Director of the American Council on Education.

NEW PRESIDENTS. During the year 1921 many colleges and universities elected new administrators and many are still without governing officials. The following new presidents were elected: Dr. P. P. Claxton, formerly United States Commissioner of Education, became Provost of the University of Alabama. Dr. John W. Laird was chosen president of Albion College. Rev. Fred W. Hickson was inaugurated president of Alleghany College. The Rev. James M. Thorburn, Jr., D. D., was elected to the presidency of Beaver College for Women. Dr. Guy E. Snively became president of Birmingham Southern College. Dr. F. S. Harris was elected president of Brigham Young University. Robert Judson Aley, president of University of Maine for the last eleven years, was elected president of Butler College. Joseph A. Serena succeeds W. S. Dearth as head of Cape Girardeau Normal College. Dr. William Arthur Ganfield has accepted the presidency of Carroll College. Dr. Arlo Ayres Brison is the new president of the University of Chattanooga. Dr. Harry Gage became president of Coe College. Rev. Edward D. Howard became the new president of Columbia College, Iowa. Dr. Livingston Farrand was made president of Cornell University. Dr. K. G. Matheson accepted the presidency of Drexel Institute. Dr. George Shannon McCune was elected president of Huron College. Dr. David Kinley was formally installed president of the University of Illinois. Dr. C. A. Gilbert was made president of Marionville College. David Friday was elected president of Michigan Agricultural College. P. D. Moody was made president of Middlebury College. Miss Lucia Briggs was elected president of Milwaukee-Downes College. Dr. Charles H. Clapp became the new president of the Uni-

versity of Montana. Dr. John Lee Coulter was made president of North Dakota Agricultural College. Dr. Frank P. Graves was made president of the University of New York State and Commissioner of Education. Dr. Elmer B. Bryan was elected president of Ohio University at Athens. Major General Leonard Wood was made provost of the University of Pennsylvania. Dr. John M. Thomas became the new president of Pennsylvania State College. Dr. J. D. Smith was elected president of Port Arthur College. The Rev. William D. Noon was appointed president of Providence College. Dr. Richard F. Scholz was elected president of Reed College. John L. Alger was installed president of Rhode Island College of Education. President R. B. Von Kleinsmid of University of Arizona was elected president of the University of Southern California. Professor Frank Aydelotte was elected president of Swarthmore College. Charles W. Flint was made president of Syracuse University. President Cousens is the new head of Tufts College. The Rev. J. P. Van Horn, D. D., was elected to the presidency of Upper Iowa University. Dr. J. A. C. Chandler was made the new president of William and Mary's College. James Rowland Angell was made president of Yale University.

MEDICAL EDUCATION. During 1921 there were remarkable developments in the direction of better provisions for medical education. A plan of coöperation between Columbia University and the Presbyterian Hospital was approved by both institutions in February, 1921. By the terms of this agreement Columbia University was to raise \$3,000,000 for the construction of new buildings. This condition was met by the receipt of pledges of \$1,000,000 each from the General Education Board, the Rockefeller Foundation, and the Carnegie Corporation. Mrs. Stephen V. Hartness made available for the Medical School and Presbyterian Hospital a plot between 165th and 168th Streets, Broadway and Fort Washington Avenue, New York City, valued at \$2,000,000. Mr. Edward S. Hartness contributed \$1,000,000 and there was added the legacy of the late Joseph R. De Lamar amounting to \$5,500,000. It was estimated that at least \$15,000,000 would be needed to proceed with the project. Of this amount \$12,000,000 had been assured. The Johns Hopkins University and Hospital has undertaken to enlarge its facilities, particularly in the clinical branches. The proposed expansion will give a hospital with 950 beds which will be so assigned as to contribute to teaching. The building will cost about \$3,500,000 and the endowment will require \$4,600,000, a total of \$8,000,000 which the University is now endeavoring to raise. Vanderbilt University at Nashville, Tenn., was building a new medical college, for which purpose it had in excess of \$8,000,000. Yale University was conducting a campaign to raise \$3,000,000 additional endowment for the Medical School.

RHODES SCHOLARS. The system of Rhodes scholarships was founded by the will of Cecil John Rhodes. Provision was made for supporting at Oxford University, for a period of three years each, about 176 selected scholars. The United States is entitled to send two students from each State. Candidates must be between 19 and 25 years and have completed at least two years of college work. The will outlines the

bases of selection as scholarship, character, interest in out-of-door sports and interest in one's fellows, and capacities for leadership. During 1921 four hundred and seven American college and university men were applicants for appointment. Thirty-two were appointed. The Alumni Association of the Rhodes Scholars completed a survey of the work of the American Rhodes Scholars who were in attendance from 1904 to 1914. The report shows that 351 men were appointed during this period. The occupations of 301 of these are classified as follows:

Education	141
Law	72
Business	38
Social and Religious Work	23
Government Service	15
Graduate Students	10
Scientific Work	10
Literary and Editorial	8
Medical	7
Miscellaneous	4

The *American Oxonian*, the official magazine of the Alumni Association presented a statistical study of the records of the scholars compiled by Professor R. W. Burgess of Brown University. More than 500 American Rhodes Scholars have been appointed. These have represented 172 American universities and colleges, only 39 of which were represented by as many as 5 scholars. Only 14 per cent of the scholars had less than a full college course, while 19 per cent had graduate work. "Americans succeed best at Oxford in those subjects of study which are not based on previous preparation, while the record of English students is exactly the other way."

UNIVERSITY CENTRE OF RESEARCH (WASHINGTON). See **UNIVERSITIES AND COLLEGES**.

UPPER AUSTRIA. Before the downfall of the Austro-Hungarian empire a crownland of Austria; after the establishment of the new republic of Austria, a constituent province of that state. Area, 4626 square miles; population (1911), 853,006, of whom 843,146 were Austrian subjects; population according to the census of 1920, 858,795. Capital, Linz.

UPPER SENEGAL AND NIGER. A constituent colony of the government-general of French West Africa whose name was changed by the decree of Dec. 4, 1920, to French Sudan. See **FRENCH WEST AFRICA**.

UPPER SILESIA. The territory long in dispute between Poland and Germany of which the destination was decided by plebiscite under the terms of the Treaty of Versailles as noted in the preceding **YEAR BOOK**; and whose boundaries were ultimately fixed by a decision of the League of Nations in October, afterwards confirmed by the Supreme Council of the Allied Powers. The total area of the plebiscite territory, which did not include quite all of Upper Silesia, was about 4100 square miles, or somewhat less than the State of Connecticut; and the population in 1919 was about 2,600,000. The importance of the region is due to the rich coal and zinc resources, and the highly developed iron and steel industries. Upper Silesia in the German empire produced about one-quarter of the total coal output of Germany. In general the decision assigned to Poland about three-quarters of the plebiscite area, comprising nearly one-half of the population, all the zinc mines and works, three-quarters of

the coal production, and at least half of the steel works as measured by capacity. The new boundary runs from Oderberg in the south along the Oder river, northwest to a point a little below Ratibor, thence northeast to Beuthen, which city it leaves to Germany, then northeast to a point west of Lublinitz, and finally northeast again until it intersects the Polish border. The great bulk of mining and manufacturing industries is concentrated in a small area commonly known as the Industrial District or the Industrial Triangle, comprising the counties of Kattowitz, Beuthen, and Zabrze, the southern part of the county of Tarnowitz, the city and district of Königshütte, and the city of Gleiwitz. This region contains four-fifths of the present coal production, and nearly all the metallurgical plants; and nearly half of the population of the plebiscite area. Of this region Poland received half of Zabrze, all of Kattowitz, and a little more than half of the counties of Beuthen and Königshütte. North of this triangle Poland received the greater part of the county of Tarnowitz, a small corner of Tost-Gleiwitz, and about two-thirds of Lublinitz, including the city. Poland secured of the total area about 1300 square miles or 31 per cent, and Germany, about 2800 square miles; of the population, Poland secured about 900,000 or 47 per cent. In the plebiscite area as a whole 59.6 per cent of the votes had been cast for Germany and 40.4 per cent for Poland. But the county of Leobeschütz was known to be almost exclusively German, and yet was allowed to take part in the voting because, if the territory went to Poland, it would be surrounded exclusively by Polish and Czech lands. Leaving out Leobeschütz 42.7 per cent of the votes would represent Poland's share. The vote of the plebiscite showed these three general results: In the large area of the west and northwest, five-sixths of the votes were for Germany, and a majority was cast for Germany in nearly every commune. This had been conceded by the Poles to Germany from the beginning, and it was allotted to her by the decision. In the two southern counties of Rybnik and Pless the Poles had a large majority, distributed more or less evenly, 70 per cent of the total vote being for Poland. These regions were assigned to Poland, except the northwest corner of Rybnik. Finally in the central and eastern area which includes the Industrial Triangle and makes up about two-fifths of the total plebiscite area and over three-fifths of the population, the vote was close, about 53 per cent for Germany and 48 per cent for Poland. The Germans had a large majority in the cities, while the Poles were generally in the majority in the agricultural districts and mining villages. As regards the territory, Poland received much the smaller share, that is to say, only about three-tenths of the area, but as regards the population, she received about 53 per cent, for the greater share of the densely populated industrial districts went to her. In the territory allotted to Poland about 510,000 votes were cast of which 285,000 were for Poland and 222,000 for Germany, whereas in the territory allotted to Germany there were 667,000 votes cast, of which 480,000 were for Germany and 195,000 for Poland. The discontent of Germany with the decision and the other political aspects of the situation are discussed elsewhere. See the articles, **WAR OF THE NATIONS**, **GERMANY**, **POLAND**, etc.

Among the economic aspects the following points may be noted: In general Poland acquired a much larger share of the mineral wealth and manufacturing industries, while Germany retained the great bulk of agricultural and forest land. The industrial importance of Upper Silesia is based chiefly on its coal deposits. Among the various estimates of coal resources that of the Upper Silesian Union of Mines and Furnaces reckoned a coal reserve at a depth down to 2000 metres at 166,000,000,000 metric tons, of which 114,000,000,000 were believed to be workable; down to a depth of 1000 metres, the figures were 86,000,000,000 and 60,000,000,000, respectively. The value of the coal output of Upper Silesia before the war was about \$75,000,000 annually. About one-third of it found a market in Germany where it was consumed, especially in the metallurgical industries. In the present territory of Poland, exclusive of Upper Silesia, the prewar production (1913) of black coal was about 9,000,000 tons. This was less than one-third of the production in the portion of Upper Silesia allotted to Poland. As to iron ore, the total amount used by the blast furnaces of Upper Silesia in 1913 was 1,000,095,000 tons, of which 170,000 tons were supplied by Upper Silesia. The production of pig iron in Upper Silesia was 995,000 tons. These figures do not represent a large part of the total German output, but they represent a great increase in Polish iron resources. The same is true of the steel industry. In acquiring practically all the zinc and lead industries, Poland greatly profited. The production in Upper Silesia of raw zinc in 1912 represented one-sixth of the world's production. In Upper Silesia the production of lead before the war amounted to about \$3,500,000 annually. The following summary of the temporary economic measures prescribed by the League of Nations is supplied by the United States Bureau of Foreign and Domestic Commerce in 1921:

As regards railroads formerly operated by the German government, it was provided that there should be organized for a period of fifteen years a system of joint operation. The rates were to be uniform, and any special rates in force between German territory and any place in the plebiscite territory would apply to the whole of the plebiscite territory. Merchandise of the same kind from or to Poland or Germany, or any other country, should enjoy the benefit of any special rates in force in the plebiscite territory. Profits or deficits of the joint railway system were to be divided between the two countries according to the length of the tracks, and the importance of the traffic within each.

In the absence of a special agreement between the two countries, the existing systems of water supply should be continued. There should be constituted a reciprocal easement to that effect, and water from sources passing into Polish hands should be available for all Upper Silesia on equitable terms. Inasmuch as the population of the industrial district is very dense, the consumption of water for both household and industrial purposes is extremely large, and available supplies of water are decidedly limited, these provisions are of much practical importance. The most important electric plant, located at Chorzow adjoining Königshütte, was to remain in operation as a private enterprise for at least three years,

after which the Polish State had the privilege of buying it out. The present company must furnish electricity to all parts of the territory on equal terms.

A very important provision of the decision was that the German mark was to continue as the legal tender in the plebiscite territory for fifteen years, unless the two Governments by common accord agreed to a change before that time; in the event that they could not agree and if a change became necessary, the Mixed Commission should set the date. This commission was to consist of an equal number of Poles and Germans with a president of another nationality.

The German and Polish customs laws and rates were to apply forthwith to the new frontier, with certain important exceptions. For a period of fifteen years the natural products of either zone of the plebiscite territory destined for consumption in the other zone should cross the frontier duty free. For the same period of time the crude, partly prepared, and partly manufactured products made in industrial establishments of either zone and intended for transformation in industrial establishments of the other zone and for subsequent reimportation into the country of origin, were to be duty free. In addition, for a period of three years, the natural or manufactured products of the Polish zone of the plebiscite territory must be received in all German territory without duty. The export regulations of the two countries must, for a period of fifteen years, undertake to facilitate export from their respective territories of such products as are indispensable to the industry of either zone of the plebiscite territory.

In accordance with Article 90 of the Treaty of Versailles, Poland is bound to permit for a period of fifteen years the export into Germany of any products of the mines of the Polish zone of the plebiscite territory.

On the other hand, Germany is bound for the same period to permit the export, not to Poland as a whole but to the Polish zone of the plebiscite territory, of mine products of its territory (not merely of its zone in Upper Silesia), the quantity of such products to be reckoned according to the average of exchanges from 1911 to 1913.

For 15 years any inhabitant having his domicile or occupation in the plebiscite territory should be given free of charge a circulation card enabling him to cross the border without further formality.

Both countries were required to recognize the rights and privileges granted before the date of partition to persons or corporations within the territory allotted to a continuance of the operation. There were various other provisions with regard to syndicates of employers and employees, social insurance, postal insurance, rights of nationality and domicile, and protection of minorities.

URUGUAY. A South American republic, bounded by Brazil, Argentina, and Bolivia. Capital, Montevideo.

AREA, POPULATION, ETC. Area, 72,153 square miles; population, Dec. 31, 1919, 1,462,887, giving a density per square mile of 19.2. Population in 1908 was 1,042,680, of whom 181,222 were foreigners, 62,357 being Italians and 54,885, Spanish. The population of Montevideo, March 1, 1921, was 362,880. Among the other large cities are: Salto, about 30,000; Paysandu, 26,000; Mercedes, 23,000. The movement of population in 1919 was as follows: Births, 39,307; deaths,

18,904; marriages, 7532. In 1919 the immigrants numbered 158,186 and the emigrants, 145,287, in each case a falling off from the year before. Of the immigrants 10,778 were Spanish; 5079, Italian; 5562, Brazilian; 3741, English; 2331, French; 1678, German. In 1919 the registered pupils in the public primary schools numbered 106,905. During the year 1920 there were 6060 pupils in attendance at the secondary schools, including the new evening schools. In 1910 the total attendance was 1755.

PRODUCTION. The following figures for agricultural production in 1920 were supplied by the *Pan American Union*: In 1920, 199,893 hectares were sown to corn, from which the crop was 119,942,059 kilos; to sorghum, 60 hectares, crop, 119,250 kilos; to alfalfa, 8010 hectares, crop, 19,952,052 kilos; to peanuts, 615 hectares, crop, 430,474 kilos; to black beans, 11,738 hectares, crop, 4,392,218 kilos; to potatoes, 3589 hectares, crop, 4,086,789 kilos; and to sweet potatoes, 9344 hectares, crop, 31,263,962 kilos. The 1921 wheat crop totaled 211,419 tons, of which 17,897 tons were exported almost immediately. The annual consumption, including seed, was estimated at 180,000 tons, leaving a surplus of only 13,522 tons. The national administration reported in July that the stock of wheat and flour would probably be exhausted by the end of August and restrictive measures were considered necessary in order to conserve these commodities for local consumption. Generally speaking, the situation in Uruguay was similar to that in Argentina, in that it was one of waiting for the other countries to become purchasers of pastoral and agricultural products. Crop conditions bade fair to be at least normal. That country suffered no serious political or labor disturbances during the year 1921 and stable financial conditions went far toward helping it over the general depression. According to the latest available figures the industrial establishments of the country numbered 3704, employing 36,872 workmen.

COMMERCE. The total imports and exports by countries in 1920 were 48,164,912 pesos and 80,751,720 pesos respectively.

FINANCE. The government reported a considerable budget deficit for the fiscal year 1920-21. Sums paid out, or owing, reached 40,731,882 pesos (1 gold peso equals \$1.034 United States currency), while the revenue for the same period amounted to only 37,523,323 pesos, leaving a deficit of 3,208,559 pesos. This would have been in the neighborhood of 5,000,000 pesos if the government had not received as extraordinary resources 1,772,227 pesos, arising from surpluses of the previous year and from the service fund of the consolidated debt. Out of the American loan of \$7,500,000 the sum of 2,351,387 pesos was applied to canceling the debt in current account with the Bank of the Republic. The amount to be provided for immediately, therefore, was reduced to 857,172 pesos. The principal causes for the 1920-21 deficit were the heavy decline in customs revenue, especially with regard to exportation; and the high figure of the budgetary expenses which for some years have been excessive as compared with the revenue. An additional expense to the amount of 2,105,868 pesos was the result of the additional cost of supplies for the government.

The budget estimates for the fiscal year 1921-22

called for the expenditure of 43,253,497 pesos. The national revenue for the year, however, was calculated at only 36,535,475 pesos, leaving a deficit of 6,718,021 pesos. The principal items of national income for this period were the customs duties, surtaxes on imports, and the usual excise taxes.

GOVERNMENT. The constitution as amended, Jan. 3, 1918, came into force, March 1, 1919. (See *YEAR BOOK* for 1919.) Executive power is in a president and a national administrative council, the former elected for four years by direct popular vote, and the latter comprising 9 members, 6 of the majority party and 3 of the largest minority. The president retains control over the departments of foreign affairs, interior, and war and marine, appointing the ministers of these departments. The council controls the other departments and appoints their ministers, namely: Finance, public works, industry, and education. President of the republic in 1921, Dr. Baltasar Brum; president of the administrative council, Dr. Feliciano Viera. The bill providing for votes for women and their legal equality with men was sent by President Brum to Congress.

UTAH. POPULATION. According to the report of the census of 1920, there were 449,396 residents in the State, Jan. 1, 1920, as compared with 373,351 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acres	Prod., bu.	Value
Corn.....	1921	21,000	517,000	\$393,000
	1920	24,000	526,000	789,000
Wheat.....	1921	276,000	6,299,000	4,725,000
	1920	273,000	5,331,000	8,156,000
Oats.....	1921	79,000	2,876,000	1,064,000
	1920	77,000	2,603,000	2,082,000
Hay.....	1921	540,000	1,342,000	8,628,000
	1920	511,000	1,266,000	16,760,000
Potatoes.....	1921	15,000	2,415,000	2,052,000
	1920	16,000	3,024,000	2,419,000

¹ Tons.

MINERAL PRODUCTION. The value of the gold, silver, copper, and lead produced from mines in Utah in 1921, according to the United States Geological Survey, was about \$22,595,000, a decrease from \$49,744,334 in 1920. The output of all metals was decidedly less than that of 1920, and the output of copper was less than one-third that of 1920. The mine production of gold decreased from \$2,014,556 in 1920 to about \$1,794,000 in 1921. The gold produced from copper ore was decidedly less, and the producers of siliceous ores containing gold and silver suffered from excessive costs and smelter restrictions. The mine output of silver decreased from 13,106,976 ounces in 1920 to about 12,366,000 ounces in 1921. The decrease in silver was especially noticeable at Bingham, Park City, and Ophir. The output from the Tintic district, however, was more than upheld. The Chief Consolidated mine, at Eureka, continued to be the largest producer of silver in the State, and the Tintic Standard followed closely. The mine production of copper decreased from 116,931,238 pounds in 1920 to about 34,534,000 pounds in 1921, and the value decreased from \$21,515,348 to about \$4,354,000. The mine output of lead decreased from 140,838,113 pounds in 1920 to about 89,782,000 pounds

in 1921. The value of the output decreased from \$11,267,049 to about \$4,130,000. As the average price of lead was about 4.60 cents a pound, it was not profitable to ship lead ore unless it contained much silver. The mine output of recoverable zinc in 1920 was 8,157,739 pounds, but market conditions prevented shipments of zinc ore or concentrate in 1921. It was not profitable to ship zinc ore to eastern plants on account of the high freight rates and decreased price of the metal. In 1921 the mines in Utah produced about 1,970,000 tons of ore, a decrease from 6,800,180 tons in 1920. Of this total the Bingham district produced about 1,485,000 tons as compared with 6,067,180 tons in 1920. The estimated production of the district was 47,052 ounces of gold, 1,059,700 ounces of silver, 28,349,000 pounds of copper, and 24,000,000 pounds of lead.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Revision and codification of laws relating to live stock, crops, etc., and creation of State board of agriculture and office of commissioner of agriculture; prohibiting sale of cigarettes and cigarette papers and making it unlawful to smoke in certain inclosed public places; prohibiting of sectarian teaching in the district schools; regulation of the traffic in eggs; provisions against fraud in the sale of securities; measures for the promotion of water conservation; regulation of the practice of medicine and surgery in all their branches; provision for sanitary inspection of premises of physicians, dentists, barbers, and druggists;

creation of a State welfare commission, regulation of real estate business.

OFFICERS. Governor, Charles R. Mabey; Secretary of State, H. E. Crockett; Auditor, Mark Tuttle; Treasurer, W. D. Sutton; Attorney-General, Harvey H. Cluff; Superintendent Public Instruction, C. N. Jensen.

JUDICIARY. Supreme Court: Chief Justice E. E. Corfman; Justices: Albert J. Weber, Valentine Gideon, Samuel R. Thurman, J. E. Frick.

UTAH, UNIVERSITY OF. A co-educational State institution at Salt Lake City, Utah; founded in 1850. The enrollment for the fall of 1921 was as follows: Graduates, 45; Arts and Sciences, 495; Education, 551; Mines and Engineering, 374; Medicine, 191; Law, 98; Commerce and Finance, 405; Unclassified Vocational Government Men, 162; Secondary Training, 97; total, 2418. The enrollment for the summer session was 1281. There were 153 members in the faculty with 23 additions during the past year. The enrollment during the term was about 20 per cent greater than the entire enrollment of 1920, and was the largest in the history of the institution. The budget for the year was \$433,621. The library contained 64,000 bound volumes.

The R. O. T. C. (Reserve Officers' Training Corps) stables and gun sheds were completed during the year, and a shipment of horses was received for use by the men in training. President, Dr. George Thomas, A.B., A.M., Ph.D., was appointed President and took office July 1, 1921, Dr. John A. Widtsoe having resigned.

V

VACCINATION. See **SMALLPOX.**
VALENCIAN DIALECT. See **PHILOLOGY, MODERN.**

VANDERBILT UNIVERSITY. A Methodist-Episcopal co-educational institution at Nashville, Tenn.; founded in 1873. The enrollment for the fall of 1921 was 1208. There were 165 members in the faculty. The productive funds of the institution amounted to \$3,400,000 and the income to about \$250,000. The library contained 80,000 volumes. Chancellor, J. H. Kirkland.

VANN, IRVING GOODWIN. Judge, died, March 22. He was born at Ulysses, N. Y., Jan. 3, 1842; graduated at Yale in 1863 and at the Albany Law School in 1865, in which year he began the practice of law at Syracuse. He was mayor of Syracuse in 1879; justice of the supreme court of the State from 1882 to 1896; and judge of the court of appeals until Jan. 1, 1913, when he retired. He was a lecturer at the law schools of Albany, Syracuse, and Cornell University.

VAN SYCKEL, BENNETT. Judge, died at Trenton, N. J., December 19. He was born at Bethlehem, N. J., April 17, 1830, entered Princeton University at the age of thirteen and graduated in 1846 at the age of sixteen. For thirty-five years he was a member of the supreme court of New Jersey. In 1911 he was appointed to the commission which was created to study the question of the Morris Canal, and which reported against the taking over of the canal by the State. He also assisted in drafting the legislation for New Jersey for the restraint of the power of trusts. At the time of his death he was the oldest alumnus of Princeton University.

VARADY, ROSZI. See **MUSIC, Artists, Instrumentalists.**

VASSAR COLLEGE. A non-sectarian institution of the higher learning for women at Poughkeepsie, N. Y.; founded in 1861. The enrollment for the fall of 1921 was 1143. There were 147 members in the faculty. The productive funds amounted to \$3,332,900 and the income to \$164,000. The library contained 112,679 volumes. A bequest for a Physics Building was received. President, Henry Noble MacCracken, Ph.D., LL.D.

VAZOF, IVAN. Bulgarian poet and novelist, died, September 22. Funeral honors almost equal to those bestowed on royalty were accorded to him and eulogies were pronounced upon him by government officials. He was born in 1850. Among his novels the following have been translated into English; *Under the Yoke*, and *Virgin Soil*.

VEAL. See **LIVE STOCK.**

VECSEY, FERENC. See **MUSIC, Artists, Instrumentalists.**

VEGETABLES. See **HORTICULTURE.**

VENEZUELA. A South American republic on the northern coast, bounded on the east by British Guiana and on the south by Colombia. Capital, Caracas.

AREA, POPULATION, ETC. The area is estimated at 398,594 square miles; population, estimated, Dec. 31, 1918, at 2,852,614, giving a density of seven persons to the square mile. Important cities with their estimated populations are as follows: Caracas, 86,880; Valencia, 54,387; Maracaibo, about 50,000. The movement of population in 1919 was as follows: Births, 83,055; deaths, 62,019; marriages, 17,170. The immigrants in the year were 12,433; emigrants, 12,879. Primary education is free and nominally compulsory from the age of seven, but the obligation is often neglected. Since 1915 it has been required that all pupils, including those in elementary schools, pass a state examination. For higher education there were the universities of Merida, Los Andes, and Caracas, but the last named was closed in 1912. Measures have latterly been taken for the improvement of higher education. The expenditure for education in 1920-21 was 4,328,181 bolivars.

PRODUCTION. About one-fifth of the people are engaged in agriculture, and the chief industry is the production of coffee. Other products are: Cocoa, sugar cane, corn, cotton, vegetables, rubber, vanilla, tonka beans, and copaiba. Live stock according to the latest available figures were as follows: Oxen, 2,004,257; goats, 1,667,272; pigs, 1,618,214; asses, 312,810; horses, 191,079; sheep, 176,668; mules, 89,186. Cattle-raising is important but the number has not increased to the extent that might be expected. In 1839 the estimated number was 1,671,881 and in 1920 2,237,945. Among the reasons given for this small increase was the lack of water in the dry season. The minister of public works has latterly attempted to relieve this condition by the building of a large reinforced concrete dam of the waters of the Guarido river and has undertaken the digging of wells on a large scale. There is abundant mineral wealth, and gold is one of the chief mining industries. It is exploited in the region to the southeast of Ciudad Bolivar and the output in 1918-19 was 760,000 grammes. Copper and coal are also worked, and the petroleum production has latterly developed. Asphalt is obtained from the Lake Bermudez region.

COMMERCE. The chief domestic exports in 1918 in order of value were: Coffee, by far the greatest item; cocoa; hides; rubber and balata; gold and cattle. The following table from the *Statesman's Year Book* of 1921 shows the distribution of the foreign trade by countries for two years:

	Imports		Exports	
	1917-18	1918-19	1917-18	1918-19
	£	£	£	£
United States.....	2,109,060	3,646,157	1,970,637	4,361,357
United Kingdom....	772,561	1,094,951	522,911	582,437
Spain.....	154,623	171,358	363,293	742,860
France.....	153,952	108,149	323,681	2,200,756
Netherlands.....		3,349	115,706	204,958
Italy.....	55,983	46,609	59,825	56,241

COMMUNICATIONS. Vessels entered in 1918-19 numbered 819 of 643,297 tons. The total length of the railways in 1920 was given at 1039 kilometres. For distribution among the lines, see preceding YEAR BOOK.

FINANCE. The following table shows the principal items of the budget for the fiscal year ending June 30, 1921:

Items	Revenue, bolivars
Customs.....	14,000,000
30 per cent contribution.....	4,410,000
Tax of 25 per cent on import duties.....	3,675,000
Transit tax.....	400,000
Liquor tax.....	7,500,000
Tobacco.....	8,600,000
Salt revenue.....	6,700,000
Stamps.....	6,500,000
Other revenue.....	7,827,000
Total.....	59,612,000

Items	Expenditure, bolivars
Department of Interior.....	12,166,529
Department of Foreign Affairs.....	1,927,203
Department of Finance.....	16,889,308
Department of War and Navy.....	11,101,520
Department of Internal Development.....	5,300,509
Department of Public Works.....	6,246,420
Department of Public Instruction.....	4,328,182
Budget rectifications.....	518,429
Total.....	58,538,600

The public debt, Dec. 31, 1920, was as follows: Internal debt, 45,175,169 bolivars; registered debt, 2,447,755 bolivars; foreign debt, 84,004,427 bolivars: total, 131,627,351 bolivars.

GOVERNMENT. Executive power is in the president who has a cabinet of seven members; and legislative power, in a congress of two houses, namely, the senate of forty members, elected for three years; and the chamber of deputies who are chosen by direct election for three years in the proportion of one to every 35,000 inhabitants in each state and one more if there is an excess of 15,000. President in 1921, General Juan Vicente Gomez.

VERMONT. POPULATION. According to the report of the census of 1920, there were 352,428 residents in the State, Jan. 1, 1920, as compared with 355,956 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	82,000	4,510,000	\$ 3,428,000
	1920	81,000	3,897,000	4,797,000
Oats.....	1921	81,000	2,673,000	1,577,000
	1920	81,000	2,835,000	2,126,000
Hay.....	1921	913,000	1,958,000	21,024,000
	1920	927,000	1,247,000	28,642,000
Potatoes.....	1921	25,000	3,750,000	3,900,000
	1920	27,000	3,510,000	4,388,000

¹ Tons.

TRANSPORTATION. The latest figures available gave the total mileage for railroads as 1073 miles and 128 miles of electric roads. The carriers of the State are under the control of the Public Service Commission, which is made up of three appointive members. There was no appreciable amount of railroad construction during the year.

FINANCE. Cash on hand and in banks, July 1,

1920, \$1,965,122; receipts during fiscal year, \$5,105,039; disbursements, \$5,047,229; cash on hand and in banks, June 30, 1921, \$2,022,932.

EDUCATION. The enrollment in 1921 was 61,797; average daily attendance, 51,142; number of teachers, 2935; total of teachers' salaries, \$2,260,031.56; total expenses for educational purposes, \$12,628,034.59.

STATE INSTITUTIONS. The State institutions with latest available figures for population are as follows: House of Correction for Women, Rutland, 17; House of Correction for Men, Windsor, 93; State Prison for Women, Rutland, 19; State Prison for Men, Windsor, 197; Industrial School, Vergennes, 248; School for Feeble-minded, Brandon, 122; Hospital for Insane, Waterbury, 766.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Provision for planning commissions in cities, towns, and villages; amendment of direct primary law and providing that voters shall declare their party affiliations; repeal of Presidential primaries; prohibition of advertisements pertaining to venereal disease or certain sex disorders; provision for supervision and regulation of workmen's compensation insurance; requiring license and tax for bill board advertising; provision that State party committees be composed half of women and half of men; provision for annual purchase of State forests; provision that no person shall be debarred from public office on account of sex.

OFFICERS. Governor, James Hartness; Lieutenant-Governor, Abram W. Foote; Treasurer, Walter F. Scott; Secretary of State, Harry H. Black; Auditor, Benjamin Gates; Attorney-General, Frank C. Archibald; Commissioner of Education, Clarence H. Dempsey.

JUDICIARY. Supreme Court: Chief Justice, John H. Watson; Associate Justices: George M. Powers, William H. Taylor, Willard W. Miles, Leighton P. Slack.

VERMONT, UNIVERSITY OF. A co-educational State institution at Burlington, Vt.; founded in 1791. The enrollment for the fall of 1921 was as follows: Colleges of Arts and Sciences, 582; Medicine, 117; Engineering, 192; Agriculture, 145; total, 1036. The enrollment for the summer session of 1921 was 552. There were 135 members in the faculty. Endowment funds, not including funds invested for income in dormitories, amounted to \$819,786, and the income, from private endowment funds only to \$45,831. The total receipts for the year 1920-21 were \$649,245. The library contained 107,236 bound volumes and 39,000 pamphlets. President, Guy Winfred Bailey, A.B., LL.D.

VETERINARY MEDICINE. The fifty-eighth annual meeting of the American Veterinary Medical Association was held at Denver, Colo., from September 5 to 9. Dr. A. T. Kinsley of Kansas City was elected President; Dr. M. Jacob of Knoxville, Tenn., Treasurer; Dr. N. S. Mayo of Chicago was re-elected Secretary; and Dr. J. R. Mohler of Washington, D. C., Editor of the Journal. The Live Stock Sanitary Association held its twenty-fifth annual meeting at Chicago, Ill., November 28-30, at which Dr. T. E. Munce of Harrisburg, Pa., was elected President and Dr. O. E. Dyson of Chicago, Secretary and Treasurer. The third conference of State and National Research Workers on Animal Diseases

was held at Chicago, November 26, at which Dr. C. H. Stange of Ames, Iowa, was elected Chairman and Dr. R. A. Whiting of Lafayette, Ind., Secretary.

VETERINARY EDUCATION. The number of accredited veterinary colleges in the United States was 16, the same as the preceding year, and 10 foreign veterinary colleges, or one more. The total number of freshmen enrolled in all colleges for the session beginning in the fall of 1920 was 182, as compared with 352 for the preceding year. The total enrollment at all veterinary colleges was 965, against 1265 for the preceding school year, and the number of graduates 277, compared with 371 in 1920. The decline of 170, or nearly 50 per cent in the number of freshmen enrolling during the year, is thought to have been due in part to the increased educational requirements.

NECROLOGY. With the death on May 10 of Dr. James Law, Professor Emeritus at the New York State Veterinary College since 1908, at the age of 83 years, the profession lost one of its oldest and most respected members. Dr. Law held the chair of veterinary science at Cornell University from 1868 until his appointment in 1896 as Director of the newly founded and endowed New York State Veterinary College. As a teacher and writer he was one of the most eminent of those who have contributed to the development of veterinary education in this country. His most important writing is the *Textbook of Veterinary Medicine*, in five volumes, now in its second edition. The death of Dr. W. Horace Hoskins, Dean of the New York State Veterinary College at New York University since 1917, on August 10, at the age of 61 years, removed another of the leaders in veterinary education. The death of Dr. Edward Wallace Hoar, at Cork, Ireland, took place on November 26, at the age of 57 years. He was well known for his contributions to veterinary literature, of which the most notable are *Veterinary Therapeutics*, now in its third edition, and a *System of Veterinary Medicine* in two volumes. Dr. Victor A. Norgaard, a graduate of the Royal Veterinary College at Copenhagen, Denmark, died Nov. 16, 1920, at the age of 53. Dr. Norgaard was appointed Chief of the Pathological Division of the Federal Bureau of Animal Industry in 1896, and became territorial veterinarian of Hawaii in 1905. Dr. E. A. A. Grange, Principal Emeritus of the Ontario Veterinary College, died July 25. Dr. Jacob Albrechtsen, famous as a specialist on sterility of farm animals, died at Copenhagen, Denmark, September 11, at the age of 61.

APPROPRIATIONS. The Agricultural Appropriation Act, approved March 3, included \$1,978,800 for the investigation of tuberculosis of animals, its control, eradication, etc., of which \$1,000,000 was for the payment of indemnities. An additional sum of \$600,000 for payment of indemnities was appropriated by Congress in the deficiency bill approved by the President on December 15. The amount appropriated for hog cholera work for the fiscal year beginning July 1 was increased to \$510,000, which included \$195,000 for regulation work under the Biologic Products Act of 1913. The sum of \$50,000, or a decrease of \$15,200, was appropriated for dourine eradication work, and for cattle tick eradication work \$660,000, or a decrease of \$21,160. An emergency appropriation of \$50,000 was again made available for use in

combating possible outbreaks of disease, such as foot-and-mouth disease, rinderpest, etc.

BOVINE TUBERCULOSIS ERADICATION. The work of eradicating tuberculosis of live stock under the accredited herd plan went forward rapidly, 8201 herds containing 193,620 cattle having been officially accredited at the end of the fiscal year (June 30), or more than twice the number at the same time the preceding year. The herds tested once without showing any reactors numbered 49,814 and contained 643,233 cattle, or approximately three times as many as the preceding year. Operations were extended to Colorado and Arizona, making a total of 47 States and the Territory of Hawaii that are actively participating in the campaign. The progress in area work, which consists in the testing of all cattle within a definite area, usually a county, likewise was rapid, 10 entire counties having completed one or more official tests of all their cattle by June 30, and 49 others entered upon active area campaigns. In 25 additional counties plans were being made to begin the work. It was found that 11.83 per cent of the hogs slaughtered under Federal inspection for the 9 months ended March 31 were infected with tuberculosis. Ninety-six per cent of the tuberculosis in swine in the Middle West was found to be traceable to feeding the hogs on unsterilized skim milk or dairy by-products, or allowing them to follow dairy or feeder cattle. A continuation of the studies of a local glandular tuberculosis of hogs resulted in definitely determining the cause of the disease to be a true avian type of the tubercle bacillus.

CATTLE TICK ERADICATION. The eradication work conducted by the Federal Bureau of Animal Industry, in cooperation with State and local officials and live-stock owners, resulted in the release of 32,171 square miles from quarantine in the States of Alabama, Georgia, Louisiana, North Carolina, Oklahoma, and Texas, during the fiscal year ended June 30. An additional area of 29,563 square miles in Texas, Georgia, Louisiana, and North Carolina was released from Federal quarantine for the cattle tick on December 10. With this addition there has been released 72 per cent of the whole area originally placed under quarantine, leaving 206,015 square miles in the various infested regions still under government regulation. Lack of local funds and local conditions made it necessary during the year to re-quarantine a number of areas.

HOG CHOLERA. In the hog cholera control work a reduction in the funds appropriated for the work from \$446,865 in 1920 to \$192,200 for the fiscal year ended June 30, 1921, necessitated a curtailment in the force of veterinarians from 140 to 54. The work was directed especially at preventing the spread of infection from primary outbreaks, with a view to saving as many hogs as possible. The mortality from the disease was 39.3 per thousand, a slight decrease from the preceding year.

DOURINE ERADICATION. Good progress was made in the work of eradicating dourine, no new cases having been found in North Dakota, South Dakota, or Wyoming. A small number of diseased animals was discovered in Montana, and some further work remains to be done in that State and also in New Mexico. In Arizona, where more than 80 per cent of the affected animals were found, satisfactory progress was

made. The complement-fixation test was made of 22,855 samples of blood serum, of which 515 or 2.2 per cent gave positive reactions.

ERYSIPELAS OF SWINE. Investigations reported upon by G. T. Creech have shown conclusively that the affection urticaria, or "diamond skin disease," existing in the United States is caused by a type of *Bacillus erysipelatis suis*, the causative agent of swine erysipelas, and should be classed as a chronic form of that disease.

RINDERPEST. An epizootic among cattle in São Paulo, Brazil, was determined on March 5 to be rinderpest, this being the first time the disease has occurred upon the American continent. Control measures were promptly applied, and the last official report of a case was made on May 23, after approximately 600 head had died and some 1000 been slaughtered. All restrictions on transit of animals was removed by the Government on August 26.

FOOT-AND-MOUTH DISEASE. Outbreaks of this disease occurred in England and were traced to cattle shipped from Ireland. The investigations of Sir Stewart Stockman as to the source of the invasions of Great Britain by this disease, of which there have been 65 or more in the last 20 years, indicate that the virus may be carried by the air. Its occurrence in Europe was quite general and the cause of great loss, particularly in Italy, Switzerland, France, and Germany. Investigations by P. Serena and F. Kuoni with trypan blue indicate that chemotherapy is destined to play an important rôle in its combat.

FORAGE POISONING AND BOTULISM. In investigations in Michigan, Z. Northrup Wyant found an organism that resembles *Bacillus botulinus*, both morphologically and culturally, in 6 of 11 samples of silage that had caused forage poisoning in live stock. The toxin from the culture isolated from one of the samples of silage caused the death of experimental animals. Graham and Schwarze at the University of Illinois isolated an anaerobic bacillus biologically resembling *B. botulinus* from corn silage on a farm where the herd had developed symptoms of forage poisoning and a number had died.

CHICKEN POX CONTROL CAMPAIGN. A campaign for the control of chicken pox in fowls was commenced July 1 by the New Jersey Agricultural Experiment Stations in coöperation with Squibbs Laboratories, the vaccine being supplied at cost to all who apply for it.

SHEEP AND CATTLE SCABIES. In the eradication work with scabies of sheep 22,114,154 inspections were made and 8,273,450 dippings supervised. The affection was found to be quite prevalent in California, Nevada, Wyoming, and Colorado. In the coöperative eradication of scabies of cattle 2,797,001 inspections were made and 1,073,696 dippings supervised.

PARASITE INVESTIGATIONS. It was found that monthly treatment of sheep with a 1 per cent solution of copper sulphate makes it possible to rear lambs to marketable age without losses from stomach-worm infestation. The treatment has a beneficial effect upon the ewes as well as upon the lambs. Experiments by B. H. Ransom and his associates have shown that by taking special precautions to prevent round-worm infestation of young pigs until they reach the age of four months much loss can be prevented. Further studies by these investigators have shown that

the path of migration of *Ascaris* larvæ from the intestines to the lungs is by way of the circulating blood and lymph, also that some of the larvæ may be returned to the heart from the lungs and that then they may be carried to various parts of the body in the systemic circulation.

Carbon tetrachlorid was found, in experiments by M. C. Hall, to be highly efficacious in the removal of hookworms from dogs, also in the removal of ascarids from dogs and the large strongyles from horses. The hookworm of common occurrence in American foxes was found to be identical with the common European dog hookworm, *Uncinaria stenocephala*. It has not as yet become established among dogs in the United States, where *Ancylostoma caninum* is the common species. A gapeworm occurring in cattle in Porto Rico was found to be *Syngamus laryngeus*, hitherto known only in the Orient, or a closely related species. Work by B. Schwartz shows that certain nematodes of the family Strongylidae, including *Ascaris lumbricoides*, contain substances physiologically related to hirudin and snake venom, that inhibit coagulation of blood to a marked degree. Thus the injection of their secretions into the intestinal mucosa by certain biting nematodes results in minute hemorrhages and may be of etiological importance.

The turkey was found by Ransom to be the natural host of the gapeworm of fowls, and apparently the chief agent in the spread of gapeworm to new localities and the principal source of infection to the soil on poultry farms where gapes is prevalent.

STOCK POISONING PLANTS. In investigations by C. D. Marsh and his associates, several species of milkweed occurring on the Western range were found to be important sources of loss, particularly of sheep. Similar conclusions were arrived at in investigations by C. E. Fleming and his associates. Other poisonous plants reported upon include the coffee bean in Texas; "yerba manza" in New Mexico and Arizona; western sneezeweed, which causes "spewing sickness" of sheep on the range; and the rayless goldenrod, which causes "alkali disease" or milksickness.

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VICTORIA. A state of the Commonwealth of Australia in the southeastern part of the continent; next to Tasmania the smallest of the

Australian states. Capital, Melbourne. Area, 87,884 square miles; population, estimated, Jan. 1, 1920, 1,495,938. More than three-fifths of the total population are urban, namely, 961,888. The capital, Melbourne, which is also the capital of the Commonwealth pending the completion of the new capital at Yass-Canberra, had a population, including suburbs, Jan. 1, 1920, of 743,000. Other cities with population estimates of that date are: Ballarat, 39,840; Bendigo, 34,780; Geelong, 34,270. In 1919 the movement of population was as follows: Births, 31,621; deaths, 19,370; marriages, 11,706. The immigration by sea in 1919 was 33,621 and the emigration, 37,099, both exclusive of the Australian expeditionary forces. Executive power is vested in a governor who acts through a responsible ministry; and legislative power, in a parliament of 2 houses, namely, the upper house with 34 members elected for 6 years, and the lower house with 65 members elected for 3 years unless sooner dissolved. Governor in 1921, Lord Stradbroke; Prime Minister, H. S. W. Lawson.

VILLEGAS Y DECORDERO, José. Art director of Spain, died at Madrid, November 11.

Crop	Year	Acreage	Prod., bu.	Value
Peanuts.....	1921	149,000	¹ 109,068,000	6,526,000
	1920	133,000	¹ 110,390,000	6,071,000
Potatoes.....	1921	136,000	14,688,000	16,157,000
	1920	134,000	18,480,000	17,556,000
Swt. potatoes.....	1921	44,000	4,180,000	5,225,000
	1920	42,000	5,334,000	5,067,000
Sor. syrup.....	1921	13,000	¹ 1,079,000	971,000
	1920	14,000	¹ 1,400,000	1,470,000
Cotton.....	1921	33,000	¹ 16,000	1,312,000
	1920	42,000	¹ 22,000	1,600,000

¹ Pounds.² Tons.³ Gallons.⁴ Bales.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Virginia was issued by the Bureau of the Census. The figures are preliminary and subject to such change and correction as may be found necessary from a further examination of the reports.

The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The accompanying table gives a comparative summary for the State in 1919 and 1914:

	1919	Census— 1914	Per cent of increase, ¹ 1914-19
Number of establishments.....	5,603	5,508	1.7
Persons engaged in manufactures.....	139,197	118,109	17.8
Proprietors and firm members.....	5,900	6,125	-3.7
Salaried employees.....	13,929	9,164	52.0
Wage earners (average number).....	119,368	102,820	16.1
Primary horsepower.....	419,019	337,567	24.1
Capital.....	\$464,517,000	\$261,501,000	77.6
Services.....	146,030,000	56,118,000	160.2
Salaries.....	25,925,000	11,245,000	130.5
Wages.....	120,105,000	44,873,000	167.6
Materials.....	372,041,000	155,320,000	139.5
Value of products.....	641,810,000	264,039,000	143.1
Value added by manufacture (value of products less cost of materials).....	269,769,000	108,719,000	148.1

¹ A minus sign (—) denotes decrease.

He was born at Seville in 1848 and became widely known throughout European art circles. He was at one time director of the Prado Museum and President of the section of painting of the Royal Academy of Fine Arts.

VILNA. See LITHUANIA; and WAR OF THE NATIONS.

VIRGIL, ALMON K. See NECROLOGY.

VIRGINIA. POPULATION. According to the report of the census of 1920, there were 2,309,187 residents in the State, Jan. 1, 1920, as compared with 2,061,612 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	1,904,000	47,600,000	\$32,844,000
	1920	1,884,000	56,520,000	56,520,000
Oats.....	1921	163,000	3,342,000	1,872,000
	1920	148,000	3,241,000	2,625,000
Wheat.....	1921	847,000	8,301,000	9,629,000
	1920	892,000	11,150,000	20,070,000
Rye.....	1921	38,000	418,000	397,000
	1920	40,000	480,000	744,000
Tobacco.....	1921	167,000	¹ 91,850,000	18,829,000
	1920	246,000	¹ 179,580,000	43,099,000
Hay.....	1921	942,000	¹ 939,000	16,591,000
	1920	925,000	¹ 1,202,000	28,127,000

OFFICERS. Governor, Westmoreland Davis; Lieutenant-Governor, B. F. Buchanan; Secretary of State, B. O. James; State Treasurer, Chas. A. Johnston; State Auditor, C. Lee Moore; Attorney-General, Jo. Lane Stern.

VIRGINIA, UNIVERSITY OF. A non-sectarian institution of the higher learning at Charlottesville, Va.; founded in 1825. The total enrollment in 1921 was 3546, and the faculty numbered 100. President, Edwin A. Alderman, LL.D.

VIRGIN ISLANDS. A group of small islands east of Porto Rico, part of which belong to the British colony of the Leeward Islands (q. v.), and part to the United States. The latter were purchased from Denmark by the United States government for \$25,000,000 by treaty, proclaimed Jan. 25, 1917, and were formerly known as the Danish West Indies. The largest island of the group is St. Croix, about 85 square miles. St. Thomas contains about 30 square miles and St. Johns, about 20, and there are besides some 50 small islands, for the most part unnamed and uninhabited. Population at the census of 1920, 26,051 as compared with 27,086 in 1911 and with 38,231 in 1860. In 1917 about 80 per cent were negroes; 7.4 per cent, whites; and the remainder of mixed blood. In that year 14,901 were on the

island of St. Croix, and 10,191, on St. Thomas. The larger part of the trade has been with the United States. Captain S. E. W. Kittelle was appointed governor, March 28.

VITAL STATISTICS. The Department of Commerce, through the Bureau of the Census, announced, in December, 1921, that in the year 1920 there were 1,508,874 births reported within the birth registration area, which includes 23 States and the District of Columbia, the estimated population of this area on July 1, 1920, being 63,659,441 or 59.8 per cent of the total population of the United States. The birth rate was therefore 23.7 per 1000 population, which is considerably higher than the rate (22.3) for the previous year, but is below the rate (25) for 1916, which may be looked on as a more normal year, as it preceded the influenza epidemic and the entrance of the United States into the war.

The highest birth rate for whites was in North Carolina with 31.7 per 1000, and the lowest in California with 18.3. The highest figures for the combined dark races are found in California and Washington, where they reach nearly 40 per 1000. Under "dark races" are included the red Indian and the yellow Asiatic races. The negro birth rate in some of the more northerly States as Kansas and Kentucky is lower than any white figures, while in Virginia and the Carolinas (the only Southern States in the registration area) it differs but little from that of the whites, and this is true of a number of Northern States.

On October 22 last the Department of Commerce of the Bureau of the Census announced that the number of deaths in the registration area of the United States during the year 1920 was 1,142,578, which represents a death rate of 13.1 per 1000 population as compared with 12.9 in 1919, this being the lowest figure recorded since the establishment of the registration area in 1900.

The death registration area is considerably larger than the area for birth registration, since it comprises 34 States, the District of Columbia and 16 cities in nonregistration States. The total estimated population of this area on July 1, 1920, was 87,486,713, or 82.2 per cent of the estimated population of the United States.

During 1920 the State of Nebraska was added to the registration area so that at present the only States not in the latter are Alabama, Arizona, Arkansas, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, West Virginia, and Wyoming. The figures for Hawaii, which represent registration territory, are not included with the continental figures.

In regard to individual causes of death the mortality from pneumonia increased from 123.5 per 100,000 in 1919 to 137.3 in 1920; chronic heart disease showed an increase from 131 per 100,000 in 1919 to 141.9 in 1920 and cancer increased in the same interval from 80.5 to 83. Other diseases showing an increase comprise whooping cough, measles, cerebral hemorrhage, congenital debility and malformations, puerperal fever, scarlet fever, and appendicitis.

A marked decrease of mortality was shown in tuberculosis which was 114.2 in 1920 as compared with 125.6 in 1919; also in influenza—71 in 1920 as against 98 the year before. The death rate for suicide declined over 1919, and this is also true of the rates for typhoid fever and accidental drowning.

The high infant mortality still "challenges the national conscience," to use the language of the special report of the Children's Bureau of the U. S. Department of Labor which was released for publication in June, 1921. During the year 1919 in the United States, one mother died for every 135 babies born and every eleventh baby born died before it was a year old. Six countries have a lower infant mortality than the United States and 16 in a group of 17 a lower maternal mortality. In fact the figure for the States is almost the highest recorded and is steadily growing larger, despite the fact that other countries are showing constant improvement in their statistics. Our increase in childbirth mortality which was only 6.1 per 1000 in 1915 has risen steadily to 7.4 in 1919.

Experience has shown that thousands of deaths of both mothers and children could be prevented every year by public measures for the protection of maternity and infancy. In New York City, among 4496 mothers who were supervised by the New York Maternity Centre Association before and after the birth of their babies, the maternal mortality rate was less than one-third the rate of the United States, and the rate for deaths in early infancy was less than half that for the city as a whole. In other cities of the United States and in foreign countries, the institution of infant welfare measures has been followed by greatly decreased death rates.

Measures which have proved successful in preventing this waste of life among mothers and babies include the following: prompt and accurate birth registration, health centres, public health nurses, special clinics, trained attendance at childbirth, adequate hospital service, education of the mother in maternity and child hygiene and education of the general public in the significance of and necessity for maternal and infant health.

MARRIAGE STATE. In the Bulletin which covers this subject, released by the Bureau of the Census of the Department of Commerce on Jan. 26, 1922, the figures pertain to the first day of January, 1920. At that period there were in the United States 53,900,431 males of whom 36,920,663 were men and boys over the age of 15 years. Of the latter number 12,967,565 were single, 21,849,266 were married, 1,758,308 were widowed and 235,284 divorced. For the remaining 110,240 the marital condition was not ascertained by the enumerators. The total number of females for the same period was 51,810,189, including 35,177,515 women and girls 15 years and upwards of age. Of the latter number 9,616,902 were single, 21,318,933 were married, 3,917,625 were widowed, and 273,304 divorced. Of the remaining 50,751 the marriage state was not ascertained by the enumerators. The excess of married men over married women which amounts to 530,333 was due principally to the large number of foreign men in the country who had left their wives in the home countries. The figures on divorced people have no connection with the actual number of these individuals but simply show that these divorcees and divorcees had not remarried at the date of the census. Comparison of 1920 with 1910 shows that the single population was greater in the latter year, the married population showing an increase in 1920 which was considerably in excess of the decrease of single men. In women the decrease in the single population was greater than the increase of the

married, for the decade. There were more widows and more divorcees in 1920. These and other figures are in part explicable by the earlier age at which women marry and their greater longevity. They therefore not only marry much younger but outlive their husbands age for age. The ratio of women to men differs notably with the section of the country. In the New England States and New York, the ratio of men to women is low and the proportion of married women comparatively small. In the Pacific coast and Rocky Mountain States, on the contrary, the ratio of men to women is high and the proportion of married women large; while that of the men is relatively small. The largest proportion of married men is found in Mississippi and Arkansas—62.8 per cent—and the smallest in Nevada—45.9 per cent. The largest proportion of married women is in Wyoming with 70.5 per cent and the smallest in Massachusetts with 53.2 although in the District of Columbia the proportion is still lower—47 per cent. In every one of the States and in the District of Columbia the proportion of married men has increased during the decade but in the case of the women five States and the District showed a decrease—Vermont, North Dakota, Oklahoma, New Mexico, and Nevada. However, the decrease is very slight, and in numerous other States the figures are nearly equal.

VITAMINES. See **FOOD AND NUTRITION.**
VOCATIONAL AGRICULTURAL EDUCATION. See **AGRICULTURAL EDUCATION.**

VOCATIONAL EDUCATION. See **EDUCATION IN THE UNITED STATES.**

VOCATIONAL REHABILITATION. See **EDUCATION IN THE UNITED STATES.**

VOGL, THERESE. See **NECROLOGY.**

VOLCANOES, HAWAII. The systematic observations at the Hawaii Volcano Observatory during the past year have shown that the level of the lava in Halemau-man has been higher than the average during preceding years. There were several quiet eruptions in the early part of the year, one of which (that of March 18) caused the molten lava to overflow the rim of the crater and flow a short distance down the flanks of the volcano. This eruption was accompanied by peculiar atmospheric disturbances due to the large amount of gas liberated. The investigations of the quality and temperature of the gases were made. The temperature was about 1200° F., and the gas consisted mainly of water vapor (70 per cent) CO_2 , SO_2 , and S were present in widely varying amounts. Chlorine and nitrogen were found in small amounts. The most interesting feature was the proportion of hydrogen to argon, neon, and helium. It was found that these latter were twice as abundant in proportion to hydrogen in the volcanic emanations than in the atmosphere. This fact is of interest in relation to the origin of the helium bearing natural gas of Kansas, for which a volcanic origin is entertained by some.

Investigation in the Kan Desert southwest of Vulture brought to light some ancient rock carvings and fossil human foot prints, well preserved in the volcanic ash.

VEUVUS. The great Italian volcano has been slightly active during the year. No great eruptions occurred, but during the frequent minor eruptions, investigators have descended into the crater and have observed the processes and

measured temperatures. The exact details have not yet been published. The Helian government has brought out a new and very excellent map of Vesuvius on which the various flows are clearly shown and dated.

OTHER VOLCANIC DISTRICTS. The outlying volcanic districts in the East Indies, Africa, and Iceland have been the fields of important studies during the past year. Mention must be made of the work of Brouwer on the volcanic domes of the Malay Archipelago and the mechanics of their formation. There have also been published descriptions of the dormant volcanoes of east Africa and of Southwest Africa, but no eruptions have been recorded.

In Iceland there has been a renewed activity in the study of volcanoes. A detailed investigation of the Randhola group shows that the volcanoes are arranged dominantly along a series of parallel fractures with larger volcanoes where these rifts are broken by other faults of different systems.

VOLHYNIA. A government of the former empire of Russia, situated in West Russia east of Poland and Galicia; and since the war forming part of the new state of Ukraine. Area, 27,699 square miles; population, Jan. 1, 1915, 4,241,800, the majority of whom are Little Russians. Capital, Zhitomir, with a prewar population estimated at 96,800.

VOLUNTEERS OF AMERICA. This organization is similar to the United States Army, but the spirit is purely democratic. It was founded in 1896 and conducts Christian, social, and philanthropic work throughout the United States. Statistics for 1921 are not yet available, but in 1920 there were 61 homes or institutions where benevolent work is conducted by various philanthropic departments, such as employment bureaus, wood-yards, industrial effort, cooperative stores, boys' clubs and trade classes, supplying of coal, distribution of milk and ice, women's sewing classes, reading-rooms, hospital nursing, summer excursions, fresh-air camps, distribution of clothing, providing of food for poor families and wives and children of prisoners. A large number of lodgings and meals were provided both men and women at the various establishments of the organization in 1921. Numerous indoor and open-air religious services were held with large attendances. The movement maintains The Volunteer Hospital in New York City where treatment was rendered a vast number of patients and much valuable work carried on during the year. The Prison League of the organization was established twenty-one years ago; it carries on reform of the prisoner within the walls and aims to strengthen his moral and social position upon leaving the prison. Very important work has been conducted with the girls of the large cities through Working Girls' Homes and many children were afforded vacations at fresh-air camps in the country.

The executive offices of the organization are at 34 West 28th Street. General Ballington Booth is President and Colonel J. A. Merrill, Secretary.

VORARLBERG. Formerly a crownland of the kingdom of Austria; after the war a province of the new republic of Austria. Area, 1005 square miles; population (1910), 145,408, of whom 132,908 were Austrian subjects and 95.36 per cent German-speaking; population according to the census of 1920, 133,212. Capital, Bregenz.

W

WADE, JAMES FRANKLIN. Army officer, died, August 23. He was born at Jefferson, Ohio, April 14, 1843; educated in the common schools; and entered the Civil War as a first-lieutenant in the Sixth United States Cavalry. He was made lieutenant-colonel of the Colorado Cavalry, May 1, 1864, and breveted brigadier-general, Feb. 13, 1865. He was honorably mustered out of the volunteers in the following year and transferred to the regular army with the rank of captain. He rose through the successive grades to the rank of major-general, April 13, 1903, and retired by operation of law, April 14, 1907. During his military career he was breveted for gallantry at Beverley Ford, Va., at Marion, Tenn., and during the campaign in southwestern Virginia. He was head of the Cuban evacuation commission in 1898, and was in the Philippines from 1901 to 1904, being in command of the division of the Philippines during the last two years of that period. He was in command of the Atlantic division from 1904 to 1907.

WALES. A division of the United Kingdom, lying west of central England, with the Irish sea on the north and the Bristol channel on the south. Area, 7466 square miles; population (1911), 2,025,202; (1921), 2,206,712. See GREAT BRITAIN.

WALLACE, JOHN FINDLEY. Civil engineer, died, July 3. He was born at Fall River, Mass., Sept. 10, 1852; and graduated in civil engineering at the University of Wooster in 1882. He was engineer in a great variety of enterprises in railway construction, bridge building, canal building, etc. From 1871 to 1876 he was engineer on the Upper Mississippi river and improvements of Rock Island Rapids, and successively chief engineer, bridge engineer, and resident engineer on several railways of the Middle West. He was first American chief engineer on the Panama Canal in 1904. From 1906 to 1917 he was president and chairman of the board of directors of Westinghouse, Church, Kerr and Company. He designed and constructed many important terminals, and was the adviser to many large corporations.

WALLACHIA. The central and western division of Roumania, with Transylvania and Moldavia on the north, Serbia on the west, Bulgaria on the south, and the Dobrudja on the east. Area, 29,916 square miles; population, Jan. 1, 1913, 4,716,291. The largest city is Bucharest, the capital of Roumania, with a population in 1917 of 308,987.

WALSH, WILLIAM J. Archbishop of Dublin, died, April 8. He was born Jan. 30, 1841, educated at the Catholic University of Ireland and at St. Patrick's College at Maynooth. He became a professor at Maynooth, 1867, and was vice-president of the college after 1878 and president after 1881. From 1891 to 1917 he was commissioner of education in Ireland and commissioner of intermediate education from 1892 to 1919. He held many other important positions in educational institutions in Ireland. He was Primate

of Ireland after 1885. Among his publications may be mentioned a work on the Irish land act and various treatises on educational questions and grievances; *Bimetalism and Monometalism* (1893-95); and a number of works on the church questions of the day.

WARFIELD, BENJAMIN BRECKINRIDGE. University professor and theologian, died, February 17. He was born at Lexington, Ky., Nov. 5, 1851, graduated at Princeton in 1871 and at the Princeton Theological Seminary in 1876. He afterwards studied at the University of Leipzig. He was ordained to the Presbyterian ministry in 1879 and was an instructor and afterwards a professor in the Western Theological Seminary till 1887, after which he became professor of didactic and polemical theology at Princeton Theological Seminary. He edited the *Presbyterian and Reformed Review* (1890-1902) and wrote: *Divine Origin of the Bible* (1882); *Inspiration* (1882); *Introduction to the Textual Criticism of the New Testament* (1886); *Augustine's Anti-Pelagian Treatises* (1887); *The Idea of Systematic Theology* (1888); *On the Revision of the Confession of Faith* (1890); *The Gospel of the Incarnation* (1893); *Two Studies in the History of Doctrine* (1893); *The Right of Systematic Theology* (1897); *The Significance of the Westminster Standards* (1898); *Acts and Pastoral Epistles* (1902); *The Power of God, Unto Salvation* (sermons, 1903); *The Lord of Glory* (1907); *Calvin as a Theologian, and Calvinism Today* (1909); *Hymns and Religious Verses* (1910); *How Shall we Baptize?* (1911); *The Saviour of the World* (sermons, 1914); *The Plan of Salvation* (1915); *Faith and Life* (1916); *Counterfeit Miracles* (1918).

WAR OF THE NATIONS. The present article covers the principal aspects of international relations during the year. Supplementary to it are the paragraphs pertaining to foreign affairs in the sections on *History* in the articles FRANCE, GERMANY, GREAT BRITAIN, ITALY, JAPAN, RUSSIA, and other countries mentioned below. For the activities of the various peace bodies throughout the world, see the article INTERNATIONAL PEACE AND ARBITRATION.

THE REPARATIONS

PARIS CONFERENCE. Germany replied at the beginning of the year to the French criticism of delay by handing over material with a list of the quantities delivered already, which were considerable. A conference of the Allied Prime Ministers was held in Paris, January 24-29, for further discussion of the reparations question and German disarmament. Difference of opinion between France on the one hand and Great Britain and Italy on the other was again manifested. The French demanded that the total indemnity be placed at 400,000,000,000 gold marks. To this Lloyd George, supported by the Italian representative made a vigorous objection. A debate followed during the next three days and a decision

was reached comprising the following points: The total indemnity was to be 226,000,000,000 marks or its equivalent, to be paid by Germany to the Allies within 42 years on a sliding scale of annual payments ranging from 2,000,000,000 to 6,000,000,000 marks; Germany to pay during this period of 42 years an annual tax of 12 per cent on her total exports, also to revise her financial system, balance her budget, increase taxes, railway fares, postal rates and imposts on alcohol and tobacco, and reduce the issue of paper money; finally, Germany was required to obtain the approval of the Allies before making any foreign loans. If Germany failed to fulfill these conditions the Allies were authorized to seize German customs, levy taxes in the Rhineland, assume financial control of Germany and impose military penalties. The Allied prime ministers at this conference adopted the Reparations Commission's proposal of an increase of German coal deliveries to 2,200,000 tons a month without any further premiums on ordinary coal but with an allowance of two gold marks per ton for coal of a special quality; and Germany was to make up the 500,000 tons which she had not delivered under the Spa agreement. As to disarmament the Germans were required to conform to the Spa agreement by July 1. Finally, the German government was invited to send representatives to a London conference of the Premiers on February 28 to discuss the means of carrying out these terms. In Germany there was practically unanimous condemnation of these decisions of the conference and the government declared that it would persist in refusing them. At the same time the German government consented to send representatives to the London conference.

LONDON CONFERENCE. A conference of the Allied prime ministers was held in London on February 28 and the German government was invited to send delegates. The following proposals were submitted to it on March 1 by the German representative: The German government offered to pay a total indemnity of 50,000,000,000 gold marks from which 20,000,000,000 was to be deducted for payments already made, but this was conditioned upon a result from the Upper Silesian plebiscite which should be favorable to Germany, on German freedom from all commercial restrictions, on permission to Germany to make payments in five-year installments and on the success of Germany in raising the funds necessary for the making of the payments at the specified date. The reply of the Allied prime ministers was an ultimatum requiring Germany's acceptance of the reparation demands within four days or a settlement that nearly conformed to them under penalty of Allied occupation of German territory.

SITUATION IN MARCH AND APRIL. No satisfactory answer having been received French troops on March 8 occupied the Ruhr basin, taking possession of the cities of Düsseldorf, Duisburg, and Ruhrort. On March 16, the Reparations Commission demanded the payment by Germany of 12,000,000,000 gold marks before May 1 of which 1,000,000,000 was to be paid by March 23. Germany replied on March 23 that she did not owe this amount and could not raise the money if she did owe it. The Reparations Commission and the Allied prime ministers now endeavored to find means of enforcing pay-

ment and France threatened the occupation of the entire Ruhr district by May 1, unless the Germans respected unconditionally the terms of the London conference. Lloyd George, supported by the Italians, opposed this radical measure on the part of the French and chiefly at his suggestion a scheme was adopted for the levy of a 50 per cent ad valorem duty on German exports to any of the Allied countries; each country to adopt the necessary tariff measures but the sums collected to be pooled and divided. The business men of the nations involved objected to this arrangement and when it appeared from Lloyd George's admission that Great Britain intended to keep its own receipts until the British share of reparations had been paid, this plan appeared to be unworkable. Meanwhile Germany had appealed to the United States to act as mediator, and on April 24, the German government requested the United States government to give its judgment on a new programme of reparations proposed by Germany, involving the issue of an international loan of 5,000,000,000 gold marks for use in the payment of the Allied debt, and offering German coöperation in restoring the devastated regions of France. The Washington government replied, May 3, that the proposals did not in its opinion afford a basis acceptable to the Allies.

THE ALLIED ULTIMATUM. The Supreme Council met again in London, April 30, at the time when the French were threatening to occupy the entire Ruhr district. The Council again dispatched an ultimatum to Germany, May 6, making a new offer. This required that Germany must accept by May 12 under threat of the occupation of the Ruhr, the following conditions: Disarmament in accordance with the Treaty; immediate trial of war criminals; immediate payment of the sum due, May 1; immediate acceptance of the terms outlined by the Reparations Commission. This proposal fixed the total amount of Germany's reparation debt at 132,000,000,000 gold marks (\$33,000,000,000); of which \$12,500,000,000 must be paid in bonds at 5 per cent,—\$3,000,000,000, by July 1 and \$9,500,000,000 by Sept. 1, 1921; an annual payment of 2,000,000,000 gold marks (\$500,000,000) to be paid by Germany in order to provide for interest and sinking fund on these bonds, the amount to be paid in two installments together with a levy of 25 per cent on all her exports. The balance, amounting to \$20,500,000,000, was to be turned over by Germany to the Reparations Commission and blank bonds were to be issued by that Commission according as returns from the export taxes should warrant. An additional 1 per cent was levied on Germany's foreign trade for the purpose of starting a fund. In this programme no provision was made by the Commission for reimbursing the cost of occupation. The payments, therefore, were to be made out of the fixed and variable annuities payable by Berlin for reparations totaling 132,000,000,000 marks, gold. French critics complained that thus the German debt would be diminished and the French credit cut down by a figure equal to the cost of occupation.

In the first week in May the Fehrenbach government which had refused to meet the Allied demands encountered an adverse vote in the parliament and resigned. It was followed by the ministry of Dr. Joseph Wirth on a programme,

involving immediate acceptance of the reparation terms and of the requirements in respect to disarmament and the trial of war criminals. (See GERMANY.) The parliament had voted for this programme by 221 to 175, the opposition consisting of the People's party and the Socialists. On May 11 Germany accepted unconditionally the Allied terms, fixing the amount due at 132,-000,000,000 gold marks.

The payment of the first billion marks (gold) was made by Germany, August 31. As the result of agreements concluded by the Allied finance ministers who met at Paris, August 13, France received no part of it. This decision was based on the ground that France and Belgium had already received payments in kind in excess of the cost of their contingents in the forces of occupation on the Rhine while Great Britain had received from £25,000,000 to £30,000,000 less than her disbursements. See FRANCE, *History*.

WIESBADEN AGREEMENT. A solution highly satisfactory to France was reached in the draft of an agreement arranged between the French and German representatives, M. Loucheur and Herr Rathenau, at Wiesbaden at a meeting, August 25-27, after a preliminary meeting at which the main lines of the understanding were laid down. The project was submitted to the Reparations Commission and approved by it although from the British side objections were offered. After a discussion of more than a month the agreement was signed at Wiesbaden, October 6, by the two representatives above mentioned. It provided for the creation in Germany of an organization charged with making the deliveries of materials which the war sufferers of the French devastated regions, grouped under the auspices of the French Government, might order from German industries. It was specified that the materials furnished by Germany would be utilized only for the reconstruction of the French devastated regions. The value of the deliveries to be made by Germany to France on this basis were not to exceed 7,000,000,000 gold marks during the period between Oct. 1, 1921, and May 1, 1936. This amount was to be placed to Germany's credit and to France's debit in the accounts of the Reparation Commission. The amounts thus paid in gold marks to France would have to reach a minimum of 35 per cent of the value of the deliveries made by Germany, but should not exceed 1,000,000,000 gold marks per year. The amounts due by France would bear simple interest at 5 per cent. On May 1, 1936, the accounts of the amounts still due to Germany on deliveries in kind since October 1, 1921, would be established, and this balance would be reimbursed to Germany with compound interest at 5 per cent in four biannual payments, on June 30 and Dec. 31, 1936, and 1937, under the condition that the amounts do not exceed the value of France's share of the annuities to be paid by Germany to the Allies under the reparations scheme of April 27, 1921. In addition to the principal agreement referred to above, four annexes, relative to machinery, rolling stock, cattle, and coal, were signed on October 7. The texts of these agreements were sent to the Reparation Commission for approval.

Sir John Bradbury, British member of the Reparations Commission made a report to his government objecting to the Wiesbaden accord and

proposing certain modifications. In this report which was published in the papers and gave rise to a sharp discussion in both countries he expressed the fear that the agreement in assuring France these large payments in kind, might prevent England from securing her share of the reparations; and he proposed certain safeguards. According to a considerable portion of the British press the agreement was contrary to the Treaty of Versailles. French comment on this was to the effect that after the Treaty was signed, the English had recommended that France should conclude a direct agreement with Germany for the payment of the reparations in kind. Now that France had done so, the British were saying that their action was contrary to the Treaty.

SITUATION AT THE CLOSE OF THE YEAR. The principal points in respect to the German reparations during the remainder of the year were as follows: On October 31 the period of fifteen days' grace was allowed to Germany for the payment of the 500,000,000 gold marks, due November 15. On November 6 the Reparation Commission decided to investigate German conditions with a view to seeing whether Germany was able to pay the \$120,000,000 due January 15, 1922. On December 15 the Reparation Commission received a notice from Germany that she would be unable to meet her January and February payments, and could not raise more than 200,000,000 gold marks out of the billion that was due, and at the same time the representative of Germany, Herr Hugo Stinnes, had returned to Berlin, having failed to secure a loan after negotiations in London. On December 17 as a result of a conference between the British and French prime ministers, the French foreign office declared that it would abandon the schedule of German payments under the following conditions: Great Britain to insure France against attack from Germany, thus reducing French military expenditure; France to assist in improving the Anglo-German economic situation, and to grant Germany every facility for the making of deliveries. France, however, did not agree to reduce her claims for reparation. French comment was exceedingly bitter at the close of the year on the repeated scaling down of the reparations, the constant tendency of her Allies to remit the claims of France in favor of Germany, and the bad faith of Germany, who according to the French press deliberately depreciated the value of the mark in order to evade her obligations. Many French writers favored a system of control over German internal finance such as had been employed against Turkey.

GERMANY'S PAYMENTS TO DECEMBER 31. The following statement of Germany's payments on the reparation account down to Dec. 31, 1921, was issued by the Reparations Commission: Total of payments by Germany to the Allies in specie, in kind, and by cession of state property from the day of the armistice to December 31, 6,487,856,000 gold marks, distributed as follows: Gold and foreign securities, (a) Direct payments, 1,041,-419,000; (b) Paid by Denmark on the account of Germany for the Schleswig-Holstein cession, 65,000,000; (c) Product of the restitutions, 36,136,000; (d) Sale of condemned material of war; (e) Sundries, 657,000. Total, 1,184,172,000 gold marks. Deliveries in kind, valued in gold marks, (a) Provisioning of the Allied and associated Powers, 2,760,250,000; Sales to Luxemburg,

the Textile Alliance, etc., 39,092,000. Total, 2,799,341,000 gold marks. Estimated value of state property in the ceded territories, 2,504,342,000.

POSITION OF FRANCE

FRANCE AND ENGLAND. During the year many French publicists, alarmed at the apparent isolation of their country, traversed again and again the points at issue between France and England. It was realized that outside France sympathies generally tended toward the side of England. The Socialists everywhere, of course, were against her and the whole spirit of internationalism attacked her as the chief offender. In the United States, Italy, the Netherlands, Switzerland, and Scandinavian countries, there was a tendency to regard France as either Imperialist in her designs or the victim of imaginary fears with respect to German vengeance. She was thought to be planning a third Punic war against Germany. It was believed that a secret treaty had been formed with Poland whereby the army of Marshal Pilsudsky was ready to march at the first signal in case Germany did not yield to the demands of France, and to this alleged secret compact French championship of Poland in respect to Upper Silesia was attributed. From the point of view of the French apologists France had gone to the limit in conciliation and she could grant no more without sacrificing her own security and the protection which she owed to her natural allies in Central Europe. The policy of Great Britain was attributed to a design of building up a Germany strong enough to hold France in check. The financial interests of Great Britain were behind this policy because they wished to renew trade with Germany as soon as possible. The coal interests of Great Britain were also on this side, fearing that they might cease to control the world market and believing that if the Poles obtained the mines of Upper Silesia and France held the lines of the Saar, those two countries would become independent in respect to coal. The pacifists were on this side of the question, since they believed that the French military power was a menace to the peace of the world. Everywhere in Central Europe, according to the French, there were British agents working against French interests. To be sure these agents acted apparently without authority, but they nevertheless acted in the spirit of the government's policy. Naturally Germany and her friends were doing all they could to stir up trouble, particularly between France and England. French writers warned the English that in spite of the bad economic condition of France, the national sentiment had retained all its force and the menace of Bolshevism did not exist in France. Moreover, France had the best army in the world. There was no reason why France should humiliate herself before any Power. England, embarrassed by the Irish and Egyptian questions, by the disorders in Mesopotamia, Palestine, Persia, and India, and by her industrial crisis and unemployment had certainly as much need of the friendship of France as France had of the friendship of England. The pretense that half the French were simply the victims of nervous fears, was simply ridiculous. England followed the policy of laying on France the whole burden of maintaining the peace on the Rhine without permitting her to gain advantage from it.

France was not seeking any new conquests on the Rhine; she was seeking only a control over the intermediate zones in order that the spirit of hostility might not cause dangers there. Besides checking the efforts of France to insure peace on the Rhine, England was delaying the restoration of French national power. England knew that Germany would not pay her debt. The British government had laid its hands on the greater part of the first billion of the German installment under the pretext that France possessed the mines of the Saar although they did not yield profit at this time but only a deficit. And this was in spite of the terrible financial condition of France. The British complained because France, driven to desperation, wished to secure some payments in kind even at the risk of damaging her own industries. Again, when France had pointed out that a well-equipped German army of 50,000 men was in Upper Silesia, Lloyd George shrugged his shoulders and replied simply: You are nervous but it is excusable. England, they said, was deeply concerned about the appreciation of the mark. This could be brought about only by the improvement of Germany's industrial condition. In Great Britain the sense of the economic interdependence of nations lay at the bottom of all reasoning on this subject. Believing that all the nations hung together and that if one were in a bad economic condition all the others would suffer, the British aimed at the economic reorganization of Germany. But this must be assured by political as well as economic measures since production and exchange could only go on under conditions of peace. Hence, it was necessary to defeat any policy tending toward the exercise of force and toward the revival of conflicts between nations. The pacification of the world must be attained by all possible means. These principles were presented by prominent French publicists as absurd on their face. They asked what account they took of the ten ruined departments of France and of the guaranty of French safety in the future. They condemned this point of view as too restricted, saying that England cared only about pacifying Germany and that Lloyd George judged the question of the Rhine simply from its bearing on this matter of British commercial relations with Germany. Lloyd George in the House of Commons had said, "Germany to-day is in a state of depression; this state of depression will not last. Now to the extent to which she recovers her prosperity, the occupation of her territory will become more and more insupportable to her and this occupation will give rise to more and more unpleasant incidents." Lloyd George in consequence was concerned with the reduction of the occupation to a minimum. This policy which he had expressed in the House of Commons also met with the approval of Mr. Asquith, the leader of the opposition. Former president Raymond Poincaré had published documents to prove that the prevention of the French occupation of the Rhineland or the shortening of their occupation had always been an obsession of Lloyd George. It had been understood in France that the French in case of aggression would be protected by Great Britain and the United States. This guarantee no longer existed. France must have a guarantee on the Rhine. The chief issue and almost the sole issue according to many of the Nationalist writers was this question of the Rhine, France regarding

her attitude toward it as vital to her interests and England insisting that nothing should be done on the Rhine but that the chief aims of foreign policy were to insure economic peace in the world and the interests of democracy in general. Both in England and in France there had been repeated revivals of the project for an alliance of those two countries with the United States. The hope of such an alliance, in spite of its unpopularity, still survived down to the eve of the Conference. Lord Derby expressed the British desire for such an alliance at the beginning of November. This gave the occasion to the American Ambassador, Mr. George Harvey, for a definite warning against entertaining any such hopes. In an address at the Chamber of Commerce of Liverpool, November 2, he referred to the traditional policy of the United States as laid down by Washington in respect to the avoidance of foreign alliances and declared that it was not to be expected that the United States would depart from this policy. From the French point of view, it was a scandalous injustice that the nation which had suffered the most was not to receive a single penny of the first billion paid by the enemy. This arrangement of August 13 had been reached in spite of French opposition. The lining up of the English, Italian, and Belgian governments on this occasion left her absolutely isolated—of great importance in view of the approach of the Disarmament Conference at Washington (November 11). Down to the eve of the Washington Conference every move of British foreign policy was explained as part of a campaign to isolate France. When the British representatives at the League of Nations tried to reserve to the British, American, and Japanese, the consideration of the question of naval disarmament and they proposed to lessen the rigidity of the territorial guarantee formulated in the celebrated Article X, it was suggested that Lord Curzon was stacking his cards for the poker game which was to be played at Washington. In any case England would not be alone at the game. She was sure of Japan and she had succeeded in purchasing at the expense of France the support of Belgium and Italy, and inasmuch as the Americans by expunging from the treaty with Germany the territorial clauses, signed by the American representatives at Versailles, were running counter to the feelings and interests of the French people and thereby making it difficult to bring the two republics into coöperation, the British foreign office saw another guarantee of their own side in the coming conference.

Among the people generally, foreign politics were followed far more closely in France than among the people in other countries. Even the smallest newspaper gave their most important pages to the discussion of foreign affairs, and among the peasantry there were definite opinions as to foreign policy. It was a mistake to assume that the tendencies for which the French government had been so bitterly criticised in other countries, were due to the ambition or misunderstanding of the ruling class. The people at large seem to be animated by more extreme views in respect to foreign policy and especially in respect to a rigid insistence on the reparations than were usual in government circles. Public opinion in France seemed generally to regard the course of the government as weak in these respects. (See FRANCE, *History*.)

FRANCE AND ITALY. A spirit of unfriendliness between France and Italy grew steadily throughout the year and led to certain incidents on the occasion of Marshal Fayolle's mission to Italy in October which gave great offense to the French. The mission had been sent by the French government to take part in the inauguration in the monument at Mount Tomba. General Fayolle and his companions were courteously received at Turin by King Victor Emmanuel but at Milan there was evidence of coldness and even hostility. In the evening the French officers were hooted in the streets and one of them was chased by the mob and had to take refuge in a café. In the region where the battle had taken place and at Mount Tomba itself, the crowd was everywhere cordial and even enthusiastic. At Vincenza the houses were decorated and the people in the streets everywhere applauded their former companions in arms. But at Venice the mission found the situation more uncomfortable than at Milan. Not a French flag was displayed in the streets, and when in the course of the ceremony before the Doge's Palace, the flag of the Chasseurs was displayed, it was greeted with cries of hatred. The barricades separating the celebrants from the mob were broken down and the French officers being deprived for the moment of protection were roughly treated by the crowds. Marshal Fayolle had to take refuge in the Campanile and the bands that played the Marseillaise were dispersed by rioters. Italian authorities that had arranged the affair had evidently not reckoned with public sentiment and had perhaps been careless in this respect for there had been many signs before of a spirit of Franco-phobia among the people at large which was reflected in many of the Italian newspapers. The feeling of the Italians seemed to lie deeper than in mere resentment over certain recent attacks in the French press and over the French comment on the affair of Fiume. It seemed related to a long-standing jealousy of France's superior position in the world as the acknowledged leader of the Latin race. Among the Italians there was much irritation also over the fact that the war had seemed to place France still further in the lead. The incidents while not important in themselves were significant in view of the tendency of events throughout the year to isolate France in European politics and it was that aspect of the affair that gave rise to long and somewhat bitter comments in the French press.

The incident was followed by an expression of regret on the part of the Italian government, to which the French authorities replied that they did not attach any importance to the affair, which they believed expressed in no way the true feelings of the Italians toward France. Nevertheless there was much comment in the French press in connection with the political isolation of France and the tendency of Italy to join Great Britain against her. The French papers reviewed at length instances of Italian unfriendliness dating from long before the war. Some of them attributed the state of Italian opinion to German propaganda, but it was more generally believed that it proceeded from a feeling of jealousy toward France as acknowledged leader of the Latin race.

FRANCE AND GERMANY. In October Prime Minister Briand declared a propos of the coming conference at Washington that he could not deny

that the government of Chancellor Wirth had been loyal to its obligations; the provisions in respect to disarmament in Germany had been met and the payments of the debt to the Allies had been made on time down to date. (See FRANCE, *History*.) At this very time, however, the same tendency to stir up hatred against Germany, keeping the French people in a state of apprehension, was manifest in the writings of French politicians. For example, it was said that no German believed that his country had been defeated in the war. The armies had returned amid the acclaim of the people. Germany had not been defeated at sea, as was evident from the fact that her fleet at the end of the war was intact. The teachers in the schools inculcated the principle that a country is never beaten, unless the conqueror dictates peace on the territory of the conquered nation. The Treaty was attributed by many Germans to treason. They said that a shameful peace was the result of the activity of the Reds. The ruling classes according to French accounts were still as pan-German as ever. The German republic was a sham, the flag of the Republic being hardly ever seen. It was absurd to suppose that the Prussian for example, who was thoroughly feudal in spirit, could become a democrat in three years. The present government was merely a shell concealing underneath it the same spirit that had prevailed before the war. The Chancellor did not have a majority behind him and was not feared, respected or obeyed. Hymns of hate were sung in the streets against him and against Walter Rathenau. The Reichswehr, to be sure, had been reduced to a hundred thousand men, but it differed in equipment only from the Schutzpolizei, which numbered 150,000, and really constituted a reserve of officers trained in the old army. Thus Germany disposed of a force of 250,000 trained troops and officers. Moreover, 7,000,000 of her citizens had had war training, and under various disguises military exercises were continued among a large number of them. Germany had at her disposal through these various social organizations a force of nearly 2,000,000, which might at any time be mobilized. To be sure, the disarmament of these organizations had been partially effected, but it was believed that their military training continued and that they remained under the same authorities as before. In the case of Upper Silesia Germany placed in readiness an army of 40,000 men well drilled and equipped. For many years to come these forces would be under the command of able officers trained in the war. The general staffs continued their activities, and there was a German Officers' League which now numbered more than a hundred thousand and was divided into local groups. There were branches of it in several countries of South America and it was in communication with similar leagues in Austria and Hungary. The chief of it was General von Hutier, former commander of the Eighth German army. It controlled and published an official organ entitled *The Deutscher Offizier Blatt*, which was subsidized by the government. On all occasion the League celebrated the prowess of the former army which it is said was victorious in a thousand battles, and denounced the shameful oppression of a civilized people without defense by their mortal enemy, France. In short, Germany was already a strong military

power in spite of her defeat, and her strength was certain to increase as time went on (see MILITARY PROGRESS).

The danger of national bankruptcy on the part of Germany was in general not taken seriously by French political writers, but like the menace of German revolution or German Bolshevism or, in fact, every other peril that had been threatened to Germany since the armistice, it was regarded as merely a part of Germany's endeavor to escape her obligations. The following arguments represent fairly well the prevailing body of French opinion as represented in the press: The threat of national failure was simply another form of Germany's attempt to cheat her creditors and in line with the trickery she had consistently employed which had already reduced greatly the amount of her debt. On November 17, Herr Hermes, the new Minister of Finance, declared that the German government had not the money to meet the obligations that fell due, Jan. 15, and Feb. 15, 1922, the former amounting to 500,000,000 gold marks on the reparation account, and the latter being the quarterly payment on German exports. He said that Germany had not the money for these payments and that was what explained the fall of the mark. There was no means of escaping from this situation except by the lightening of the burden imposed on Germany. Unless some way of deferring these payments was devised, Germany would be obliged to declare herself insolvent. According to French writers Germany had been for a long time preparing this stroke, which was designed merely to reduce the Germany debt for reparations. After Chancellor Wirth declared that the decision in respect to Upper Silesia (see below) diminished Germany's ability to pay her debt and that the Reparation Commission must interfere in accordance with Article 234 of the Treaty, to extend the period or modify the conditions of payments, M. Poincaré wrote on this subject in the *Revue des Deux-Mondes*: "So it is in vain that the Council of the League of Nations has applied all its patience and intellectual honesty to the study of this formidable question: it is in vain that it should have devised a long period of transition which would leave Germany for years to come all sorts of economic advantages. Let us call these things by their right names: The black-mail begins again." Leading French writers insisted generally that the inability of Germany to pay was a mere pretense and pointed to the activity displayed by her factories and workshops, and by the great concentration of capital that permitted this activity. According to the press German factories were producing artillery, small arms, machine guns, etc., and a great amount of injurious chemicals, more dangerous than in the course of the world's war. It was said that big business and high finance were in control of the situation. As they did not concern themselves with the public financial necessities or exercise any control over the purchase of foreign currency or over the invasion of German capital, they contributed to the depreciation of the mark. It was in their power if they wished to bring about the bankruptcy of Germany, or on the other hand—to make it possible for Germany to pay her debt. In general, it was concluded by French politicians that no arrangement would be satisfactory to Germany except one that would wipe out entirely

the German debt. If France yielded again, it would be of no advantage since it would certainly be followed by a new German campaign supported by writers like the English pro-German Mr. Keynes throughout the world, and under the threat of German bankruptcy demands for still further concessions would be made until nothing was left of the German obligations. Germany had in fact decided that she would not pay if she could get out of it. It was foolish to pretend to adjust the burden of her debt to her capacity for payment, just as it had been foolish in 1913 to pretend to conclude a peace that would satisfy "democratic Germany." Everybody at that time who had favored lighter burdens on Germany was a pro-German. The Treaty of Versailles was not severe enough against Germany. The repressive measures against her should have gone much further in simple justice to France. There was only one peace that could have satisfied Germany, and that was to leave the empire of the Hohenzollerns just as it had been. As all reductions or concessions since the armistice had only made matters worse, and as every argument advanced by Germany on her own behalf was false, and a mere ruse in order to escape her just obligations, much more severe terms should have been imposed by the Treaty and should have been carried out promptly and unsparingly.

FRENCH OCCUPATION OF THE RHINELANDS. As indicated in other paragraphs, the differences between France and her allies were especially acute as regards the Rhine question. In the latter part of the year this became a leading issue in French foreign policy. There was difference of opinion among French statesmen as to whether the occupation of the Rhineland was permissible under the Treaty. The essential points were as follows: France had agreed to the Treaty with the understanding that she was guaranteed against German aggression by the alliance with England and the United States. M. Tardieu interpreted Article 429 of the Treaty as clearly recognizing the right of France in this respect. M. Poincaré on the other hand held that according to the Treaty of Versailles and the triple agreement France was not formally authorized to prolong her occupation. On both sides, however, it was admitted that neither the British prime minister, nor the president of the United States had accepted the demand of the French that there should be an express recognition that the occupation should last until the triple agreement went into force. Aside from this question of documentary authority, French publicists were agreed that France had the right to remain on the Rhine until Germany paid her dues, because both England and the United States had failed to keep the promise in respect to the defensive alliance. France had consented to relinquish her hold on German territory at the end of fifteen years only on condition that her security was guaranteed. This condition had not been fulfilled and, therefore, her agreement was annulled. M. Clemenceau agreed with M. Tardieu that France was authorized by the Treaty to hold the Rhine territory if the guarantee of security were withdrawn. According to many writers in the press, it should be the main effort of the representatives to the Disarmament Conference at Washington to win over the Americans and English to this point of view. The French public were alarmed for the

future of their country. The political isolation of France in the face of a revengeful Germany made it necessary to press this matter. But for these circumstances France would not dream of insisting upon a prolongation of her occupation of the Rhine.

FAR EASTERN QUESTIONS

JAPAN AND CHINA: SHANTUNG. Before the Disarmament Conference Japan had carried on long negotiations with China in respect to the Shantung dispute. Reports in regard to this were made public in October. According to these the Chinese government demanded that the entire Japanese army of occupation should be immediately withdrawn from Shantung. As to the policing of the railway from Kiaochow to Tsinan, China would immediately send forces of her own railway police to take over the duty. As the lease of Kiaochow Bay expired immediately on China's declaration of war with Germany, Japan ought to return it without conditions to China at once. The vested rights of foreigners obtained under the German régime would be respected but those obtained by force during the Japanese military occupation would not be recognized. The Chinese government declared that the whole Chinese people were opposed to joint operation of the railway. In reply to this the Japanese government pointed out that the Chinese declaration of war against Germany was made in August, 1917, when over two years had already passed since the transfer of the former German rights to Japan had been recognized by China in the treaty with Japan concerning Kiaochow and other matters, and that therefore the Chinese contention that the lease expired as a consequence of China's declaration of war against Germany amounted to a complete repudiation of the treaties in existence and all established facts. Notes on the subject were interchanged, October 5, October 19, and at the beginning of November. In place of Japan's proposal of a joint operation of the railroad, China proposed a division of the capital and property into two halves, engaging China to redeem the Japanese half within a fixed period. Apparently Japan contended that the entire capital and property had been awarded to her by the Reparations Commission to offset the German indemnity, but China not having recognized the Treaty declared that she was in no wise bound by this. As the Japanese government did not intend to hold public properties in the territory, they ought to be handed over to China. In spite of the promises of the Japanese to withdraw their troops from the railway, they were still there and the evacuation had not begun.

The Shantung question was discussed early in the Disarmament Conference (see below) and meetings were held down to December 20, when a deadlock between the Japanese and Chinese delegates resulted over the question of the former German railroad. The Japanese delegates held that they could go no further until they had instructions from their own government. The railway in question was the portion of the line that ran from Kiaochow to Tsinan. The delegates were unable to agree as to the terms at which it should be sold to the Chinese and its manner of operation. At the close of the year the Chinese delegates were expressing some impatience at the delay. The negotiations had not at that time

been resumed. It was reported that the Japanese government was reluctant to go any further toward meeting the demands of the Chinese in respect to the railway and that if it did go further it would probably result in the fall of the Japanese ministry. Toward the close of the year it was understood that the Chinese were approaching the heads of the American and British delegations with a view to securing mediation. It was also understood that a boycott had been set up in Shantung and other parts of China against Japanese goods and merchants and there was fear of anti-Japanese outbreaks.

ANGLO-JAPANESE TREATY. The ANGLO-JAPANESE Treaty was definitely superseded by the Four Power Treaty (see below). It had been revised, July 13, for the purpose of consolidating the peace in the Far East and India, and for the maintenance of the common interests of all Powers in China by insuring her independence and integrity and giving equal commercial opportunities to all nations with interests in the Empire. In Great Britain there was much criticism of the course taken by Japan and it was argued that the latter Power had violated the spirit of the Treaty. Instances of this were, her secret military agreement with China, her interference in the internal war between the North and South, her railway policy and many other acts down to the time of the German defeat. Her policy indicated an intention to control Manchuria and Mongolia up to the Amur river and to reduce China to vassalage.

SIBERIA AND JAPAN. The Siberian situation was highly complicated owing to the conflicting aims of three rival elements, the new republic of Chita (friendly to the Soviet régime), the anti-Bolshevik government of Vladivostok, and the Japanese who still persisted in their military occupation. A conference between the Japanese and the representatives of Chita began at Dairen in May and continued throughout the year without definite result. On December 27, Japan formulated the following demands at this conference as published by the press: Japanese subjects to receive equal rights and privileges with citizens of the Far Eastern Republic; abolition of all laws limiting the rights of Japanese subjects; destruction of fortifications in Vladivostok and the Maritime Province; recognition of the right of Japan to maintain military guards in the Far Eastern Republic. The Chita officials declared that acceptance would turn their country into a Japanese colony. At the close of the year the capture of an important strategic point, the city of Khabarovsk, by the forces of the Vladivostok government was reported, the assailants consisting partly of the remnants of the Semenoff and other anti-Bolshevik armies. The Chita delegation at the Washington Conference attributed this to Japanese machinations, which the Japanese delegation promptly denied. Japan's official attitude in respect to Siberia continued as before: She would withdraw as soon as she was assured of a stable Russian rule and the safety of Japanese nationals in the country. The Vladivostok government also sent representatives to Washington where they declared their government the organ of sane, that is, anti-Bolshevik Russians, whereas Chita, according to them was merely a part of the Soviet system.

THE QUESTION OF SAKHALIN. There was some discussion in the press of the situation in the island

of Sakhalin (q. v.), Japanese troops being still in occupation of the town of Nikolaevsk where the so called massacre had taken place at the beginning of 1920. The Japanese garrison in the town was reduced in the latter part of 1919 from one thousand to three hundred. Early in the following year the troops of Kolchak were routed and soon afterwards bodies of wandering marauders appeared in the neighborhood. The Japanese consul there was said to have called upon his government for aid, but reinforcements were not sent. The bandits of stragglers on March 18 overpowered this inadequate force and massacred them along with the Japanese civilians in the town and several thousand Russians. According to the Russian view Japan was responsible for this since her troops were in occupation, while, on the other hand, the Japanese held the Russian government responsible and demanded compensation for the massacre. The question of Japanese withdrawal concerned especially the government of the Far Eastern Republic of Siberia which expressed its willingness to make compensation to Japan if the Japanese troops were withdrawn. This, however, was opposed on the ground that the question could not be settled until there was a recognized government of all Russia which could deal with it. For a further account of Far Eastern questions, see below under DISARMAMENT CONFERENCE.

NEAR EASTERN POLICY

TURKEY AND THE ALLIES. On the date of the signature of the treaty of Sévres, with Turkey, August 10, 1920, a secret agreement had been signed by Great Britain, France, and Italy, which was not made public until the close of 1920. It was much under discussion in the early part of 1921. This laid out certain areas of special interest to France and Italy, the French sphere consisting of the Cilician and Syrian coasts and the hinterland passing across the middle course of the Euphrates through southern Kurdistan, and the Italian sphere lying to the west of this region and between Cilicia and the coast opposite the island of Rhodes. In addition to the Italian interests in this sphere the right of Italy was reserved to exploit the Heraclea coal basin. The British sphere though not defined was understood to be the remainder of the former Turkish empire in Asia. The contracting parties pledged their diplomatic support to one another in maintaining their respective spheres of interest. The portion of the Bagdad railway traversing Turkey, together with the railway from Mersina to Tarsus and Adana were to be operated by capital supplied in equal shares by British, French, and Italian financiers, the French government having the privilege of exchanging its rights in the Bagdad line for the exclusive exploitation of the lines in its sphere of interest. The "open door" policy was to be pursued in the respective spheres subject to the treaty of Sévres. Owing to the complications arising during the year, especially to the war of the Greeks in Asia Minor, this agreement was not ratified.

GREECE AND TURKEY. A meeting of the Supreme Council was held in London, February 21-March 12, for the purpose of discussing the question of revising the treaty of Sévres (see preceding YEAR BOOK) and to it were invited delegates from Greece and Turkey. As a result of

the deliberations the following modifications of the treaty were proposed: Withdrawal of the Allied troops from Constantinople as soon as the Powers were sure of the good faith of the Turks; exclusion of the east shore of the Sea of Marmora from the demilitarized zone; the bestowal on Turkey of two votes instead of one on the Straits Commission and of the right to vote on the financial commission; recognition of the Sultan's sovereignty over Smyrna provided that he respect its rights and bestow self-government on each of the national elements; the granting to Greece of the right to keep a garrison in the town of Smyrna. These proposals with some slight changes were acceptable to both the Constantinople authorities and the Nationalists, but they were rejected absolutely by the Greeks. On March 9 the French government came to a separate understanding with the Nationalists at Angora, providing for an immediate peace, for certain economic concessions to France for which France agreed to withdraw from Cilicia; and for the alteration of the boundary between Turkey and Syria as laid down by the treaty of Sévres. On March 12 Italy also made a separate arrangement with the Nationalists, agreeing to support the Turkish demands for restitution of Thrace and Smyrna and to the withdrawal of all Italian troops from Turkish territory, in return for which Italy received certain concessions and monopolies, including priority rights in the coal basin of Heraclea.

FRANCE AND TURKEY. An accord between France with the Turkish Nationalists was concluded at Angora, October 20, the French negotiator being M. Franklin-Bouillon (see **TURKEY**). It was followed at once by attacks in the British press on the ground that it was an attempt on the part of France to settle a matter that should only be settled in harmony with her Allies and that it had been done without the knowledge or approval of the British government. To this the French reply was that it had not been done without the knowledge of the British government, for it corresponded to the understanding between M. Briand and the Nationalist representative in London in March, and its principal features had been known to the British government since April; also that it did not imply the intention of France to form a treaty with Turkey independently of her Allies, but only to take the preliminary steps toward the restoration of peace. The French papers made light of all the British objections and declared that they rested on entirely false information. Nevertheless, the subject was openly and officially referred to by the British Foreign Minister, Lord Curzon, in an address on November 24 and the policy of France condemned. He gave France the warning that if she pursued an individual policy she would in the long run fail to protect herself. He said that peace between Greece and Turkey was more important than the victory of either party, and that peace would never be achieved if any one Power would try to steal a march on the other and conclude arrangements on its own account.

DISARMAMENT CONFERENCE

ORIGIN AND PROGRAMME. The first step toward the Conference that attracted public attention was the Borah resolution voted in Congress as an amendment to the Navy Appropriation bill

May 25 which requested the President to invite the governments of Great Britain and Japan to send representatives to a Conference for the purpose of coming to an agreement whereby the naval programmes of these governments and of the United States should be substantially reduced annually during the next five years to an extent that should be agreed upon and that this understanding should be reported for approval to the respective governments. This was followed by an announcement from the State Department that it had made informal inquiries of the principal Allied Powers, namely, Great Britain, France, Italy, and Japan as to whether they would accept a proposal for a conference on this subject at Washington. At the same time the State Department announced that inasmuch as the question of reducing armaments bore a close relation to the Pacific and Far Eastern problems, the President had suggested that these problems should be discussed at the conference by the Powers especially interested. China was also to be invited to take part in the discussion of the Far Eastern problems. It was evident at once that the public heartily approved this plan, and it was even feared by the administration that the people generally were inclined to expect too much by way of practical results from the conference. The Japanese government showed signs of a desire to limit in advance the discussion of the Far Eastern question, and the United States government on July 23 sent a memorandum to Japan saying that while the Secretary of State was willing to discuss in advance the subjects that were to come up at the conference, he considered it inadvisable to incur the programme and to delay arrangements for the conference until an agreement could be reached in regard to the precise limits of its discussions. A few days later the Japanese government replied with an unconditional agreement to accept the American invitation to a conference, subject simply to the understanding that its proceedings should be outlined in advance. After informal negotiations had brought the governments of the United States, Great Britain, Japan, France, and Italy to general agreements in respect to the topics and purposes of the meeting, the President issued the formal invitations on August 11, and the date for opening the conference at Washington was fixed on November 11, that is to say, Armistice Day.

The invitations to Great Britain, Japan, France, and Italy were identical in text, and may be briefly summarized as follows: After a reference to the heavy economic burdens under which the world was struggling and to which the enormous expenditures in naval armaments largely contributed, it was said that the time had come for a direct discussion of the subject in a conference; and, that although in such a discussion the question of naval armament might naturally have first place, it was thought best not to exclude questions pertaining to other armaments. But there could be no final assurance of peace in the absence of the desire for peace, and the conference should make an effort to remove causes of misunderstanding. It was hoped that by an interchange of views, it might be possible to find a solution of the Pacific and Far Eastern problems. It was not the purpose of the American government to define the scope of the discussion in

respect to these problems. This must be left to suggestions which should be exchanged before the meeting. The invitations to the Chinese government left out the references to the disarmament part of the programme and invited the Chinese government to participate only in the discussion of the Pacific and Far Eastern problems.

France was the first to accept. The Chinese, British, and Japanese acceptances followed, and last came Italy's. The Japanese government in accepting emphasized three points, namely, the satisfaction of Japan in the fact that the United States had taken the lead in this matter of reducing armaments; Japan's desire to remove causes of international misunderstandings; and, Japan's vital interest in the affairs of the Far East. Various other Powers interested in the Far East sent communications. In the first place the Far Eastern Republic of Siberia (Chita) applied for admission to the conference. The status of this new republic had not been recognized, and its request was refused in a letter which referred to the absence of a single recognized government in Russia, and said that for reasons beyond the control of the participating Powers, the conference was unhappily to be deprived of the advantage of Russian coöperation, but that it was hoped that the conference would establish general principles which would meet the approval of the people of East Siberia and of Russia. The applications of Belgium, Portugal, and Holland were accepted, and they were invited to take part in the discussion of the Pacific problems. In August and September, various press reports appeared in respect to the subjects of discussion that were being agreed upon by the participating governments, and on September 21 the State Department issued as an official version of the programme the following summary:

LIMITATION OF ARMAMENTS:

- I. Limitation of Naval Armament, under which shall be discussed, (a) Basis of limitation; (b) Extent; (c) Fulfillment.
- II. Rules for control of new agencies of warfare.
- III. Limitation of land armament.

PACIFIC AND FAR EASTERN QUESTIONS:

- I. Questions relating to China: (1) Principles to be applied. (2) Application of Subjects: (a) Territorial integrity; (b) Administrative integrity; (c) Open door—equality of commercial and industrial opportunity; (d) Concessions, monopolies or preferential economic privileges; (e) Development of railways, including plans relating to Chinese Eastern Railway; (f) Preferential railroad rates; and (g) Status of existing commitments.

II. Siberia (similar headings).

- III. Mandated Islands (unless questions earlier settled); Electrical Communications in the Pacific.

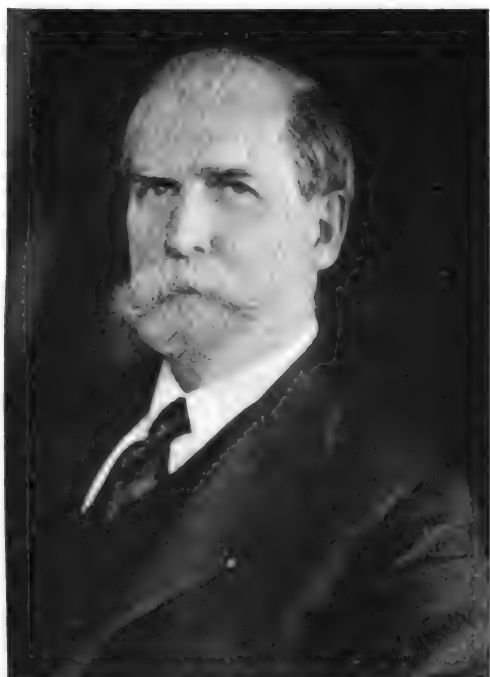
Under the heading "Status of Existing Commitments" it was expected that opportunity would be afforded to consider and to reach an understanding with respect to unsettled questions involving the nature and scope of commitments under which claims of rights might hereafter be asserted.

PERSONNEL. The United States' delegation consisted of Charles Evans Hughes, Secretary of State; Henry Cabot Lodge, the Republican Senator from Massachusetts; Elihu Root, former Secretary of State, Oscar W. Underwood, Democratic Senator from Alabama. The foreign delegations in their alphabetical order by countries were as follows:

Belgium, Baron E. de Cartier, Belgian Ambassador to the United States. British Empire: Great Britain, A. J. Balfour, President of the Council; (chosen in place of Lloyd George who was detained on account of the Irish crisis), Lord Lee of Farnham, First Lord of the Admiralty, and Sir Auckland Geddes, British Ambassador to the United States; Australia,

G. F. Pearce; Canada, Sir Robert Borden; India, Srinivasa Sastri; New Zealand, Sir John Salmound. China: Sao-Ke Alfred Sae, Envoy Extraordinary and Minister Plenipotentiary to United States; V. K. Wellington Koo, Envoy Extraordinary and Minister Plenipotentiary to the Court of St. James; Chung-Hui Wang, Chief Justice of the Supreme Court of the Republic of China. France: Aristide Briand, President of the Council, Minister for Foreign Affairs; René Viviani, Deputy, Former President of the Council; Albert Sarraut, Senator, Minister of Colonies; Jules Jusserand, Ambassador of France to the United States. Italy: Carlo Schanzer, Senator, President of the Delegation; Vittorio Rolandi-Ricci, Senator, Italian Ambassador to the United States; Luigi Albertini, Senator; Filippo Meda, Representative. Japan: Baron Tomosaburo Kato, Minister of the Navy; Baron Kijuro Shidehara, Ambassador at Washington; Prince Iyeyasu Tokugawa, President of House of Peers; Masanao Hanihara, Vice-Minister for Foreign Affairs. Netherlands: Jonkheer H. A. van Karnebeek, Minister for Foreign Affairs; Jonkheer F. Beelaerts van Blokland, Envoy Extraordinary and Minister Plenipotentiary, Chief of the Political Division of the Ministry for Foreign Affairs; Dr. E. Moreasco, Vice President of the Council of the Netherlands East Indies. Portugal: Viscount d'Alte, Portuguese Minister to the United States.

Aside from the delegations proper there were numerous bodies of secretaries, advisers, technical experts from the respective countries. For the United States there were an advisory Committee of men and women composed of the prominent representatives of diverse interests including General John J. Pershing, Herbert C. Hoover, Samuel Gompers, Rear-Admiral W. L. Rodgers, etc.; a large body of secretaries; a still more numerous technical staff composed of experts in military and naval affairs, chemical warfare, Pacific and Far Eastern questions, economics, law, and communications; and persons charged with matters pertaining to the press, cartography, archives, etc. The Secretary General was Mr. Basil Miles. The British delegation was supplemented by a remarkably elaborate and specialized technical staff, and a highly skilled section on publicity. The superior ability of the British in presenting their views to the American press was manifested throughout the Conference. Their military and naval sections included General, the Earl of Cavan of the Aldershot Command and Earl Beatty, Admiral of the Fleet, First Sea Lord of the Admiralty. The air section was represented by Vice-Marshal J. F. A. Higgins and others; the economic section by Sir H. Dlewellyn Smith; and foreign affairs by eight members of the British diplomatic service. The Secretary-General of the British delegation was Lieutenant-Colonel Sir Maurice Hankey. The French representative also included numerous secretaries and expert advisers. The general technical adviser was Marshal Ferdinand and the army was represented by General Baut and Vice-Admiral Le Bon. The chief Secretary was Philippe Berthelot. The financial and economic experts included MM. Casenave, Cheysson, de Sieres, Rincquesen and Duplan; the political and colonial experts, MM. Kammerer, Léger, Duchêne, Touzet, and Garnier, and the experts on special subjects, MM. Philippe Bunau-Varilla, Fournier-Sarlovèze, Moureu, Mayer, and Girardeau. Italy's military adviser was Lieutenant-General Giuseppe Vaccari, Chief of Staff of the army, and her naval adviser Vice-Admiral Baran Ferdinando Acton, Chief of Staff of the navy. The technical staff included experts from the various ministries. Marquis Givvanni Visconti-Venosta was Secretary-General. Japan's chief advisers were Sennosuke Yokota, Director of the Legislative Bureau, and Masanao Hanihara, and other members of the foreign office.



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Great Britain



ARISTIDE BRIAND
France



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ADMIRAL KANJI KATO
Japan

FOUR LEADERS AT THE DISARMAMENT CONFERENCE, WASHINGTON, D. C.



The Japanese Secretary-General was Taueo Matsudaira. The Chinese advisers included Admiral Tsai-Ting-Kan and other representatives of the various ministries, together with a very numerous body of special counselors. Secretary-General, Philip K. C. T'au.

As the personnel of the various delegates became known, there was much comment upon them in the papers, and in general it was held that good selections had been made, although a considerable number of American delegates appeared to have been chosen with especial reference to their ability for political reasons to carry through the Senate whatever measures might be adopted at the conference.

SUMMARY. The following review presents in chronological order a brief record of the proceedings of the Conference, the topics treated being further discussed in subsequent paragraphs: The Conference was opened in the Continental Memorial Hall at Washington on November 12 by President Harding and Secretary of State Hughes, the latter becoming chairman. The official title of the body was "Washington Conference on Limitation of Armaments and on Far Eastern and Pacific Questions." Secretary Hughes immediately presented a definite proposal for the cessation of naval construction for ten years ("naval holiday") and the scrapping of 66 capital ships of 1,878,043 tons by the United States, England, and Japan. For the text of the proposal, see the article *NAVAL PROGRESS*. It surprised the press throughout the world by its thoroughness. Great Britain, France, Japan, and Italy expressed their approval in principle of this programme of naval reduction. On November 16 China proposed the ten principles which should determine her future and the policy of other Powers in the Far East. On the same day Admiral Kato proposed a 70 per cent naval ratio for Japan instead of the 60 per cent provided by the Hughes proposal. On November 18 the representatives of the United States and Great Britain declared their adherence to the former 5-5-3 ratio in spite of the Japanese arguments. On November 19 Japan presented her side in the Chinese-Japanese question and outlined her policy toward China, declaring that while Japan must aid China in foreign affairs she would leave her free in all her domestic concerns. On November 21, the delegates, with the exception of the Chinese, accepted the four principles offered by Mr. Root for (noted below) ending special privileges in China and guaranteeing her political and territorial integrity. On the same day the French Premier and leading delegate, M. Aristide Briand, delivered a long address, explaining the attitude of France and the reason why she needed a strong military defense and denying all charges of imperialism (see *FRANCE, History*). Two days later he left Washington, preparatory to his return to France, and M. Viviani succeeded him as head of the French delegation, November 24. On November 25 and 26 the question of the right of foreign Powers to maintain separate post offices in China was discussed, and the representatives agreed on behalf of their respective nations to abolish them at the earliest practicable date. On November 29 a committee was appointed to report on the question of withdrawing the foreign consular courts from China. On the same date China requested the removal of foreign police

and troops, telegraph, and wireless systems. On November 30, China and Japan accepted British and American mediation in the Shantung dispute. On December 4 delegates arrived from the Far Eastern Republic (Chita) for the purpose of soliciting the removal of Japanese troops from Siberia, and of securing recognition and trade relations. The Chinese-Japanese discussions continued, December 5-9. On December 5 Japan agreed to waive special rights in regard to foreign personnel, capital, and material in Shantung, but claimed the right to hold a half interest in the railway. On the following day China agreed to refund the money spent by Japan on property in Shantung; and Japan agreed to return to China all public property in Kiaochow. On December 9 Japan still held to her demand in respect to the Tsingtao-Tainan railway while agreeing to give back to China all of Shantung. China persisted in her assertion that this reservation nullified the cession. On December 10 the so-called Four-Power Treaty (see below) for the mutual protection of island possessions and dominions in the Pacific was announced. On December 11 the agreement with Japan in respect to Yap and other mandate islands of the Pacific whereby the United States was granted equal cable and wireless privileges was announced by Secretary Hughes. On December 13 the Four-Power Treaty was signed at Washington. On December 14 it was reported that Japan accepted the 5-5-3 naval ratio. On December 15 the agreement in respect to naval limitation was announced by Secretary Hughes on nearly the same basis as he had proposed on November 12. This left to Japan 10 ships of 312,700 tons; to Great Britain 20, of 582,540; to the United States 18, of 525,850; military and naval outposts in the Pacific to remain as at present (see *NAVAL PROGRESS*). On December 16, the question of submarines to be allotted to France and Italy was under debate, and this matter was still under discussion at the close of the year. On December 28, Mr. Root offered a set of rules which should govern the use of submarines in war time. A marked difference of opinion, particularly between the French and British delegates on this question of submarines, developed at the close of the year.

THE PROBLEM OF THE PACIFIC. In general the chief question in the Pacific was that of Japanese expansion involving as it did Japan's tendency to encroach on China and not only check the free development of that country but interfere with the interests of other Powers. The Japanese needed markets for her increased population which was denied an entrance into the United States or into Australia. Some understanding first of all must be reached on the part of the United States, Great Britain, and Japan. The bearing of these various questions on disarmament was obvious. At the time of the Conference the interested Powers were in possession of the most powerful navies of the world. The reduction of them was a serious question as appears from the following brief review of recent naval progress in the United States and Japan: The Secretary of the Navy under President Wilson had been an energetic champion of American naval expansion. On August 29, 1916, the United States adopted the most formidable naval programme in its history and this was completed by the Naval Efficiency Act of Oct. 6, 1917, which was supplemented,

in March, 1920, by a proposal to add twenty light cruisers and 14 smaller vessels. In planning this increase the naval authorities had foreseen the important part the United States was destined to take in the Pacific Ocean and as a result of the programme the administration of President Wilson left to its successor a Pacific fleet superior to the whole American fleet before the war. This policy was followed during the first year of the administration of President Harding who, soon after his election, visited the Panama Canal and declared that a great fleet was necessary for the future of the country. The Secretary of the Navy under President Harding stationed in the Pacific a battle squadron consisting of the most recently built vessels, namely: *The Oklahoma* and *Nevada* launched in 1914; the *Arizona* (1915); the *Mississippi*, *New Mexico*, and *Idaho* (1917); the *California* and *Tennessee* (1919); the *Colorado* and *Maryland* (1920); all of which had fuel oil motor power and a tonnage ranging from 27,500 to 32,000 with batteries in each case having pieces of 356 with the exception of the *California* and *Maryland* which were each armed with 8 pieces of 406. The question of bases and stations was not settled. On the Pacific coast the navy had only 5 docks for dreadnaughts including the dock of Hawaii. By 1924 the Pacific fleet would comprise 12 super-dreadnaughts and 4 battle cruisers. In 1921, however, it was evident that the government was not pushing its naval programme with much rapidity. Congress in July made some serious cuts in the naval budget and the naval appropriations were reduced from \$184,000,000 to \$90,000,000. The building of ships was not carried on at a rapid rate and the date for the completion of the super-dreadnaughts on the model of the *California* and *Tennessee* was not fixed. No progress was made on the 5 battle cruisers, and in the autumn of 1921 the United States had only 1 light cruiser, 10 being under construction. As to personnel there was no indication that the large number necessary to man so great a fleet was available. This number was estimated at 170,000 men and over 7000 officers and Congress seemed disposed to cut this down to a total of 100,000.

Japan's programme dates back to the end of the war with Russia when Japan recognized the necessity of equipping two squadrons each with 8 modern vessels. In July, 1920, the Diet voted the programme of 1920-28 and out of her budget of 1,025,757,403 yens, Japan applied nearly 500,000,000 yens to the navy. By March, 1928, it was estimated that Japan would have the 16 ships of the line which had been projected. There were to be laid down 4 super-dreadnaughts, 4 battle cruisers, 12 light cruisers, 32 destroyers and an unknown number of submarines and airships. Of the 8 super-dreadnaughts 2 were already afloat namely, the *Nagato* and the *Mutsu* with a tonnage of 33,800. The projected dreadnaughts, the *Kaga* and the *Tosa*, would have a tonnage of 7000 in excess of this. The principal batteries consisted of pieces of 406 but two of the future battle cruisers, namely, the *Atago* and the *Katano*, were to have pieces of 450. Japan had made provision for suitable naval bases. Not only on her own coast did she have basins for the largest vessels but she had undertaken various fortifications on her islands including the islands of Bonin and Parry and much was said about her activity in 1921 at other points near the island of Guam. In this

respect the United States was far inferior to Japan, having on the Pacific only the base of Pearl Harbor at a distance of 2100 miles from Mare Island and not yet having established bases either at Guam or in the Philippines. This in the opinion of naval critics perhaps offset the numerical advantage of the United States.

As to Great Britain it was not known on which side she would throw her naval force in case of conflict. In 1920 Lord Jellicoe who was regarded as her best organizer had been sent to New Zealand and in the latter part of 1921 he submitted to the Admiralty a plan according to which the naval centre of gravity would be shifted from the North Sea to the Pacific. It involved the establishment in the Far East under the orders of the admiralty and a British staff with headquarters at Singapore, of a squadron of 8 dreadnaughts, 8 battle cruisers, and 10 light cruisers. In the autumn of 1921 the government had not yet accepted this plan or decided to place an important naval contingent in the Pacific, thus far confining itself to a defensive policy, retaining its vessels in their former stations and trusting in case of danger to mines and airships. France possessed only an insignificant naval force in the Pacific. Before the Conference there had been much discussion in the United States and Great Britain of a policy of naval co-operation between the two Powers. In Great Britain there was a feeling that the protection of their outlying territories required the aid of the United States. In the United States it was argued that British policy throughout the Empire was not in conflict with the proper interests of the United States. It was realized that the naval protection required was too expensive for any single government to bear; therefore, there was a disposition in both countries to agree on a harmonious plan and not build up their navies in a spirit of rivalry. It was proposed, for example, that agreements should be entered into between the United States on the one hand, and Great Britain and her dominions on the other. It might be arranged, for example, that the American navy should act as a mandatory for Great Britain and that subsidies might be paid by the latter to that end. In like manner the British navy might act on behalf of the United States, thus enabling this country to reduce its own navy and merely subsidize the British. These, however, were merely theoretical proposals.

INTEGRITY OF CHINA. A statement of China's policy had been made in October by the Chinese Bankers' Association, regarded as the strongest financial group in China. This laid down the lines that ought to be followed at the Washington Conference. In general the aim was to maintain permanent peace in the Far East on the basis of mutual international aid. Specifically, the principle of territorial integrity should receive first consideration. Here the Bankers' Association had in mind the Shantung question. They said the principle of territorial integrity must not be damaged by giving advantages or exceptional rights to foreign individuals. The next point had special reference to the Anglo-Japanese alliance. The principle was laid down that there should be no agreement between two nations affecting a third unless it were accepted by the third. If these principles were accepted by the Conference, China in turn should agree to the open-door policy provided that other nations renounced their

spheres of influence and special interest. Here the bankers' group had in mind the various consortions and the recognition of certain claims of the Japanese in Southern Manchuria and Eastern and Northern Mongolia. The fourth point related also to this matter of consortions and foreign coöperation. The Chinese bankers declared their approval of international financial coöperation so long as it did not interfere with Chinese financial and economic development. The fifth point had reference to the Chino-Japanese loan agreement of 1918. The bankers declared the diplomatic instruments hindering Chinese financial and economic administration should be canceled at the coming conference. Finally, it was pointed out that the division of China into North and South was merely an internal condition and did not exist in respect to international or Chinese industrial and commercial affairs. The banking groups went on to say that they were ready to coöperate in a consortium whenever it was to the interests of China to do so, but urged the government to consult the Chinese people before resorting to this mean. The government was urged also to devise a unified railway system but was warned against internationalization of the railways, and it was insisted that foreign or domestic railway lines should have no right to supervision or control, nor ought foreigners to be employed on the roads, with the exception of technical experts. The government had the right according to the bankers to fix freight tariffs without consulting foreign Powers. Foreign creditors ought not to be allowed to interfere with mines, forests, or other properties along railway lines. This last point had reference to acts said to have been committed by the Japanese along the Shantung railway. Other features of the report were proposals to adopt the gold standard and to abolish the tael. In place of the present system a unified currency with standardized dollars and subsidiary coin on a decimal basis was recommended.

THE CHINESE TEN PRINCIPLES. As noted above, the Chinese delegation early in the sessions proposed a set of ten principles to serve as a basis of the decisions of the Conference in respect to China. They were as follows:

1. (a)—The powers engage to respect and observe the territorial integrity and political and administrative independence of the Chinese Republic. (b) China upon her part is prepared to give an undertaking not to alienate or lease any portion of her territory or littoral to any Power.
2. China, being in full accord with the principle of the so-called open door, or equal opportunity for the commerce and industry of all nations having treaty relations with China, is prepared to accept and apply it in all parts of the Chinese Republic without exception.
3. With a view to strengthening mutual confidence and maintaining peace in the Pacific and the Far East the Powers agree not to conclude between themselves any treaty or agreement directly affecting China or the general peace in these regions without previously notifying China and giving to her an opportunity to participate.
4. All special rights, privileges, immunities or commitments, whatever their character or contractual basis, claimed by any of the Powers in or relating to China, are to be declared, and all such or future claims not so made known are to be deemed null and void. The rights, privileges, immunities and commitments, now known or to be declared, are to be examined with a view to determining their scope and validity and, if valid, to harmonise them with one another and with the principles declared by this conference.
5. Immediately, or as soon as circumstances will permit, existing limitations upon China's political, jurisdictional and administrative freedom of action are to be removed.
6. Reasonable, definite terms of duration are to be attached to China's present commitments which are without time limits.

7. In the interpretation of instruments granting special rights or privileges, the well established principle of construction that such grants shall be strictly construed in favor of the grantors is to be observed.

8. China's rights as a neutral are to be fully respected in future wars to which she is not a party.

9. Provision is to be made for the peaceful settlement of international disputes in the Pacific and the Far East.

10. Provision is to be made for future conferences to be held from time to time for the discussion of international questions relative to the Pacific and the Far East, as a basis for the determination of common policies of the signatory powers in relation thereto.

THE ROOT RESOLUTION. On November 21, the Conference, as noted above, accepted the resolution offered by Mr. Elihu Root embodying four general principles which should guide the policy of nations in respect to China. It was as follows:

It is the firm intention of the powers attending this conference hereinafter mentioned, to wit, the United States of America, Belgium, the British Empire, France, Italy, Japan, the Netherlands and Portugal:

1. To respect the sovereignty, the independence and the territorial and administrative integrity of China.
2. To provide the fullest and most unembarrassed opportunity to China to develop and maintain for herself an effective and stable Government.
3. To use their influence for the purpose of effectually establishing and maintaining the principle of equal opportunity for the commerce and industry of all nations throughout the territory of China.
4. To refrain from taking advantage of the present conditions in order to seek special rights or privileges which would abridge the rights of the subjects or citizens of friendly States and from countenancing action inimical to the security of such States.

FOUR POWER TREATY. The text of the Far Eastern Treaty on the part of the United States, Great Britain, France, and Japan, as given to the press in December was as follows:

I. The high contracting parties agree as between themselves to respect their rights in relation to their insular possessions and insular dominions in the region of the Pacific Ocean.

If there should develop between any of the high contracting parties a controversy arising out of any Pacific question and involving their said rights which is not satisfactorily settled by diplomacy and is likely to affect the harmonious accord now happily subsisting between them, they shall invite the other high contracting parties to a joint conference to which the whole subject will be referred for consideration and adjustment.

II. If the said rights are threatened by the aggressive action of any other Power, the high contracting parties shall communicate with one another fully and frankly in order to arrive at an understanding as to the most efficient measures, to be taken, jointly or separately, to meet the exigencies of the particular situation.

III. This treaty shall remain in force for ten years from the time it shall take effect, and after the expiration of said period it shall continue to be in force, subject to the right of any of the high contracting parties to terminate it upon twelve months' notice.

IV. This treaty shall be ratified as soon as possible in accordance with the constitutional methods of the high contracting parties, and shall take effect on the deposit of ratifications, which shall take place at Washington, and thereupon the agreement between Great Britain and Japan, which was concluded in London on July 13, 1911, shall terminate.

The Government of the United States will transmit to all the signatory powers a certified copy of the process-verbal of the deposit of ratifications.

The present treaty, in French and in English, shall be deposited in the archives of the Government of the United States, and duly certified copies thereof will be transmitted by that Government to each of the signatory Powers.

In faith whereof the above-named plenipotentiaries have signed the present treaty.

Done at the City of Washington, the thirteenth day of December, one thousand nine hundred and twenty-one.

Following is the text of the reservation note, prepared by the American delegates and accepted by the other Powers.

In signing the treaty this day between the United States of America, the British Empire, France, and Japan, it is declared to be the understanding and intent of the signatory powers:

1. That the treaty shall apply to the mandated islands in the Pacific Ocean, provided, however, that the making of the treaty shall not be deemed to be an assent on the part of the United States of America to the mandates and shall not preclude agreements between the United States of America and the mandatory powers, respectively, in relation to the mandated islands.

2. That the controversies to which the second paragraph of Article 1 refers shall not be taken to embrace questions which according to principles of international law lie exclusively within the domestic jurisdiction of the respective Powers.

Washington, D. C., Dec. 13, 1921.

AGREEMENT IN RESPECT TO YAP. A disagreement between the United States and Japan arose at the International Congress of Communications held at Washington from November, 1920, to March, 1921, in regard to the status of the cables which had been taken from Germany. The island of Yap was the terminus of important cable lines between the United States and the Far East, and the American representatives at this congress insisted that the lines should be internationalized by Japan to whom the island had been assigned under a mandate, by the Supreme Council but Japan refused to give up absolute sovereignty. Great Britain and France supported her in this. The United States government would not admit Japan's sovereignty, contending that it had not consented to the inclusion of Yap in the Japanese mandate. The American secretary of state, February 21, addressed a note to the Council of the League of Nations, requesting the reopening of the question in order to settle it properly. The Council of the League, March 2, admitted the claim of the United States, but declared that Yap had been assigned to Japan by the Supreme Council. This attitude of the United States was simply an illustration of the policy laid down in the latter part of the Wilson administration by the secretary of state, Bainbridge Colby, on the subject of the mandates. It was the contention of the administration that the failure of the United States to ratify the Treaty did not deprive it of any rights in the disposal of the former German colonies. The secretary of state on April 6 sent identical notes to Great Britain, France, Italy, and Japan, asserting this principle, and these Powers with the exception of Japan accepted provisionally the American point of view.

The text of the treaty between the United States and Japan in regard to the status of the island of Yap was published, December 12. Among its provisions were the following: Japan not to fortify the island but to have the right to maintain order; in respect to the cable the United States to have free access with an equal footing with Japan and every other nation as regards the use of the present cable between Yap and Guam and of every other cable that may be established on the island by the government or citizens of the United States; American companies to have the right without further authorization to establish a cable or a wireless station; the United States, however, not to exercise their rights in respect to wireless so long as Japan maintains a wireless station with free communication; the United States recognizes the mandate bestowed on Japan by the League of Nations over the German islands to the north of the equator; admission of American missionaries to the territory under mandate; stipulations for the protection of American property, etc.

OTHER EVENTS

LEAGUE OF NATIONS. The second full meeting of the Assembly of the League was held at Geneva, Switzerland, September 5-October 6, the representatives of forty-eight nations being present. There were no representatives from any of the Central American states, and several representatives conspicuous in the previous meeting were absent, including Paderewski of Poland, Titttoni of Italy, Rowell of Canada. Among the following new members may be mentioned Bishop Noli, head of the Albanian delegation, and Prime Minister Stambolisky of Bulgaria. Other well-known members were: Lord Robert Cecil, representing South Africa; Arthur J. Balfour; M.M. Leon Bouguis Viviani, and Hanotaux of France; H. Branting, Prime Minister of Sweden; Dr. Nansen; Baron Hayashi and Viscount Ishii of Japan; Eduard Benés of Czechoslovakia; Paul Hymans of Belgium. The temporary president was Dr. Wellington Koo, Chinese Ambassador to London, and the permanent president was J. van Karnebeek, Foreign Minister of the Netherlands. Opening discussions brought out a sharp criticism of the United States for its policy of ignoring the League and negotiating with separate governments, and for the delay that its action had occasioned the League in settling the question of the mandates. There was also a lively debate on disarmament, in the course of which, some of the speakers held that the League was powerless to make any progress in the matter on account of the attitude of the great nations, while others took a more hopeful view and argued in favor of an early international conference on the subject. The Assembly voted for such a conference, but did not fix the date. There was marked skepticism as to the ability of the approaching Disarmament Conference at Washington to accomplish anything, but a resolution expressing gratification and good wishes was passed, September 28. Another feature of the early session was the election of eleven judges to full membership on the Permanent Court of International Justice, and four deputy judges, September 14. The eleven judges were as follows: Viscount R. B. Finlay of Great Britain; Charles André Weiss of France; Dionisio Anzilotti of Italy; John Bassett Moore of the United States; Rafael Altamira y Cravea of Spain; Senator Ruy Barbosa of Brazil; Antonio de Bustamante of Cuba; Max Huber of Switzerland; B. C. J. Loder of Holland; Didrick Galtrup G. Nyholm of Denmark; Yoruzo Oda of Japan. The four deputy judges were as follows: M. Negulesco of Roumania; Mr. Wang Ch'ung-hui of China; M. Yovanovitch of Jugoslavia; M. Beichmann of Norway.

The Assembly did a piece of useful work in defining the famous Article X which had caused so much discussion. It was held that the article did not involve a pledge on the part of members to go to war in order to protect territory of other members, but involved only a pledge not to violate the territory of neighbors. No nation was bound to send troops under the provisions of this article, the sanction being simply economic pressure; and a paragraph was added to the effect that the Council would notify the members of the League of the date for the application of this economic pressure. There was much discussion of amendments to other articles, but this was the principal result accomplished.

Of the international disputes discussed at the meeting, the chief ones were: The Vilna affair, and the dispute between Albania on the one hand and Jugo-Slavia and Greece on the other. The still more important question of Upper Silesia (see the article UPPER SILESIA and paragraph below) was in the hands of a committee of representatives from Brazil, Spain, China, and Belgium, to which it had been submitted by the Supreme Council, and it was not discussed by the Assembly. As to the Vilna dispute, its settlement had been announced before the meeting as the result of a compromise secured through the efforts of Paul Hymans of Belgium. But at the time of the meeting, Poland and Lithuania were again in dispute owing to the latter's insistence that the forces of General Zeligowski should be immediately withdrawn, and the refusal of the Poles to accept this. The Assembly decided, September 24, to urge Poland and Lithuania to renew negotiations. See paragraph, *Vilna Question*. The quarrel over the Albanian frontier sharply divided the Assembly, and there was an animated discussion. The head of the Albanian delegation, Bishop Noli, testified before the Assembly that Albanian villages were being stormed by the Serbs; but the Jugo-Slav delegates made light of this charge, and pronounced an invective against the Albanians. Representatives from the larger Powers held the view that the government should deal with the subject after proper investigation, and in this they were supported by a considerable portion of the Assembly. Others, however, held that Albania should be at once supported in her demands. This course was naturally urged by the Albanian delegates, but could not be taken because the boundaries had not been definitely settled. Hence the Assembly decided to urge the Council of Ambassadors to settle promptly the question of boundaries. In respect to the Åland Islands dispute discussed in the preceding YEAR BOOK the League Council decided, November 24, to award the islands to Finland, subject to military neutrality and the protection of the Swedish inhabitants. Early in the session (September 7) Bolivia appealed for a decision of the Tacna-Arica dispute between Chile and Peru and the Assembly appointed a committee to decide whether the question could properly come before the League. Dr. Nansen appealed to the Assembly on behalf of Russian sufferers from the famine, but the Assembly refused to authorize a money grant, and decided to refer the subject to the approaching international council at Brussels on Russian relief. The application of Hungary for admission was postponed, and no action was taken in the case of Armenia, but the three Baltic states, Latvia, Lithuania, and Esthonia were admitted to membership.

Other subjects discussed by the League were: The white slave traffic; the distribution of opium; the prevention of disease; the immigration question; and the finances of the League.

UPPER SILESIA. The Upper Silesian question in its earlier aspects is discussed in the preceding YEAR BOOK. As is there noted the territory was to be divided under the Treaty in accordance with a plebiscite to be held in the region. The plebiscite took place, March 20. A description of the region as a whole and of the divisions voting respectively for Poland and Germany is given in detail in the article UPPER SILESIA, but for con-

venience the main points may be here briefly mentioned. The Germans had a majority of about 225,000, but the question of division was difficult on account of the conflicting interests of the two countries. Under the Treaty the Supreme Council of the Allies was authorized to divide the region in accordance with the wishes of the residents of the various communes. But the vote by communes did not agree with the total vote. Thus in the ten counties nearest to Poland, the vote for Poland was 435,236 and for Germany, 408,786, while the vote by communes in this same region was 645 for Poland and 200 for Germany; and in the six districts nearest to Germany, the vote was 307,214 for Germany and 36,170 for Poland, while 582 communes voted for Germany and 60 for Poland. There was a further inconsistency in that in the populous Polish counties the chief important industrial centres went for Germany by a large majority. These included: Königshütte, Tarnowitz, Beuthen, and Kattowitz. France which had been the ally of Poland through thick and thin, and had given support to every sort of propaganda against Germany, including reports of intended violence and fraud, immediately proposed a settlement arranged exclusively in the Polish interest, namely, the assignment to Poland of all these German industrial centres. This decision would have given Poland most of the coal region which contained the richest coal deposits in Europe. Great Britain and Italy, on the other hand, firmly opposed this and favored the assignment to Poland of the counties of Pless and Rybnick and part of Kattowitz where the Poles had an enormous majority. While the question was pending, the danger of war suddenly appeared. Stirred by the rumor that the Allies would decide against Poland, Polish insurgents seized the most valuable parts of the region early in May, and under the leadership of Adalbert Korfanty, the Polish high commissioner of the plebiscite, they established a government with Korfanty at the head. This caused great indignation in Germany and the German government protested to the Allies, May 5, offering to aid the Allies in putting down the revolt. This was refused by France. Soon afterwards there was a conflict between German irregular troops and the army of Korfanty. Disagreements between the French and British governments nearly led to a rupture. On May 13 Lloyd George blamed the Poles for the seizure of the region and suggested the possibility of German assistance. This brought a protest from the French government in which it was said that Poland and France had done their duty in restoring order, and that the French government would not consent to German intervention. At last on June 18 the Allied Powers agreed to restore order by means of Allied troops, and on June 26 a compromise was brought about between the Polish General Korfanty and the German General Henniker in Upper Silesia, and a truce was established until the Allies should decide on the result of the plebiscite. This arrangement was secured through the agency of the British general in the region.

On August 12, the Upper Silesian question was referred by the Supreme Council to the League of Nations and the latter body began its consideration, August 29. The subject was referred to a committee composed of representatives of Powers not affected by the question; namely, Paul Hy-

mans of Belgium, Quinones de Leon of Spain, da Cunha of Brazil, and Dr. Wellington Koo of China. After many sessions in which evidence was presented by both Germans and Poles and the findings of a neutral committee of investigation had been considered, the report was presented by the League Council, October 20. See *UPPER SILESIA*. After the returns of the League of Nations decision on the Upper Silesian question were made known, the German Chancellor, expressing the general sense of the ministry, declared that the effect was most unjust. He said it would separate from the empire and place under foreign domination German towns and the fruits of German labor and intelligence; and that it would be regarded as unjust not only by the whole German nation, but by the majority of the population of Upper Silesia. According to the Germans, the decision of the League of Nations would cost them 86 per cent of the Upper Silesian anthracite coal deposits or 42 per cent of the total anthracite deposits available to Germany, and there would be a loss of about 63 per cent of the iron industries production. They said that in the Pless district Germany lost 44,000,000,000 tons of anthracite and in the Rybnik district 7,000,000,000. The militarist element was making use of the decision to stir up hostility against the government and against the Allies. On October 27, however, the Council of Ambassadors received word from the German government that it had accepted the Allied decision and would name a member of the Delimitation Commission to determine the border. This was accompanied by a protest against the unfairness of the division. The effect of these events was to render insecure the tenure of the Wirth Cabinet. At the close of the year the execution of the League of Nations' arrangement in respect to Upper Silesia was reported to be progressing smoothly. Although there had been great fear on the part of the German manufacturers lest they should be driven out from the districts consigned to Poland, their alarm was not justified, according to the reports. A conciliatory attitude on both sides was indicated. See *FRANCE, History*.

TREATY OF THE UNITED STATES WITH GERMANY. The draft of the treaty with Germany was agreed upon after conferences in Berlin between the American High Commissioner, Mr. Ellis Loring Dresel, and the German Foreign Minister, Dr. Friedrich Rosen, and it was signed at the German Foreign Office, August 25. This brought to an end the technical state of war which had existed between the United States and Germany since the armistice, Nov. 11, 1918. For the domestic political discussion of the subject in the United States see article *UNITED STATES* in the preceding *YEAR BOOK*. In general the treaty confirmed the United States in all its rights as one of the victorious Powers under the Treaty of Versailles while repudiating all obligations of the United States under certain specified sections of that Treaty, especially the one comprising the Covenant of the League of Nations. On November 14, President Harding issued a proclamation declaring that the war between the United States and Germany ended, July 2, 1921, the date at which Congress approved the joint resolution to that effect.

THE QUESTIONS OF THE MANDATES. The assumption of the Allies after 1919 was that the

United States government having failed to ratify the Treaty and to join the League of Nations did not participate in the right to grant mandates for the territories whose sovereignty had shifted as a result of the war and that the Supreme Council of Allied prime ministers was the sole authority in this matter. The United States in 1920 and 1921 took the opposite ground and insisted that as a party to the success of the war it had a right to share in the bestowal of these territories under mandates. Many questions arose involving this principle, and the United States government set forth its position in repeated notes. For the question as applied to the island of Yap, see the paragraph on that subject. The attitude of the United States applied not only to mandates but to rights of any kind in the territories acquired by the Allies. A question of this nature arose with Holland in the spring. On April 29 the lower house of the Dutch parliament passed a law giving to Dutch exploiters exclusive oil rights in the Djambi region of the island of Sumatra for forty years. The United States government demanded equal opportunities for Americans in the island and everywhere else in the Dutch East Indies. Communications took place between the two governments, May 10 and May 27. On June 21 the Dutch government refused to accept the American demand on the ground that the pledges had been given before the American government had protested. A similar question had been raised in 1920 in regard to the oil fields of Mesopotamia, and the British government had rejected the American contention. The Yap situation (see above) gave the Secretary of State, Mr. Hughes, a chance to bring out not only the American point of view in regard to the rights in the island but also the belief of the United States that it ought to be consulted on all mandate assignments of territory formerly belonging to the defeated Powers. The ground of this claim was the fact that the United States had been one of the principal Powers that won the war and therefore had a right to object to the administration of German or Turkish provinces under mandates by any of the victorious Powers in a manner that conflicted with American interests. The United States would not admit the principle that it must join the League of Nations in order to give American citizens equal rights with those of European powers in Turkey, Africa, or the Pacific islands. In subsequent communications Mr. Hughes developed this position in respect to the mandates and paid special attention to the claim of Americans to equal terms in the former possessions of Turkey. The general spirit of the Hughes policy was that mandates must not be used as a cloak for national or imperial expansion.

RUSSIA AND THE POWERS. France, which had persistently sought in every way to isolate and injure Soviet Russia, took the lead in forming a defensive alliance against Soviet Russia along with Roumania, Poland, and Hungary, which was signed, March 2. As noted in the last *YEAR BOOK* the prolonged discussion of resumption of trade with Russia, produced no result except in the case of Great Britain, which country toward the end of the year entered into an agreement for the renewal of trade relations on the condition that the Soviet government abstain from attempts by propaganda or other means to under-

mine British authority in her dominions. The hopes of an extensive commerce as a result of this arrangement were disappointed, and in the autumn of 1921, the British government made public its discontent in this respect and offered criticisms as to the manner in which the Russian government had carried out the agreement. A trade agreement was made by Italy at the close of the year (see ITALY, paragraphs on *History*). In October, there was a movement in the United States on behalf of a similar agreement, and the Russian Commission of Far Eastern Relief recommended to Mr. Hoover, Secretary of Commerce, that an arrangement for the renewal of trade with Russia should be made. This recommendation was made after an elaborate investigation, the Commission having made a tour of the famine areas along the Volga and in Armenia, resulting in a report on measures to be taken for relief.

In the last week of October it was learned that the Soviet government was willing, under certain conditions, to acknowledge Imperial Russia's debt to foreign capitalists. On October 28 the Russian Foreign Minister, George Tchitcherine, sent a note to the governments of Great Britain, United States, France, Italy, and Japan, which, according to the press accounts, declared that the Soviet government would agree to recognize the old debts incurred down to 1914, providing that Russia acquire certain privileges which would make it possible for her to fulfill these obligations, especially the conclusion on the part of the Great Powers of a final peace with the Soviet Republic and their recognition of that republic. Referring to the report that the Brussels conference had stipulated as a condition of granting credits to Russia for famine relief, that Russia acknowledge the debts of previous Russian governments, he said that, the Soviet government had from the beginning aimed at economic coöperation with the other Powers and that in the present chaos real peace was impossible without Russia. The Soviet government had reestablished private trade and private ownership in small undertakings and was guaranteeing the safety of foreign capital and a profit sufficient to attract it to Russia. While no nation was compelled to pay the price of the chains it wore for ages, the Russian government was prepared to make important concessions in the present crisis. It was willing to recognize its obligations to the several states and to their citizens for government loans concluded by the old imperial government, but in order that it might have a chance to carry out these obligations it must be understood that the Great Powers would put an end to any measures threatening the safety of the Soviet Republic and the friendly Far Eastern Republic or their sovereign rights or their frontiers.

According to the United States Treasury officials the debt to this country from Russia amounted to \$187,729,750, having been incurred since July, 1917. On that date the American Government loaned Russia \$35,000,000. The total Russian state debt amounted, at the beginning of 1914, to 9,888,310,000 rubles, or about \$5,092,379,650. Afterwards Russia contracted other debts for the conduct of the war and these together with internal bond issues, brought the state debt up to 32,300,000,000 rubles or about \$16,634,-

500,000, Sept. 1, 1917. But the Soviet offer did not include debts incurred after 1914.

TREATY OF RIGA. The war between Poland and Soviet Russia in 1920 was terminated by the armistice at Riga in October of that year whose terms are outlined in the articles on **POLAND** and **WAR OF THE NATIONS** in the **YEAR BOOK** for 1920. These terms were substantially included in the Treaty of Riga, March, 18, 1921. They amounted to an acceptance of the Polish conditions and involved a boundary cutting off Lithuania from Russia, granting to Poland a corridor of territory, and the relinquishment by Russia of her claims to East Galicia. According to some estimates Russia lost 87,000 square miles of territory with 7,000,000 inhabitants of whom only 6 per cent were Polish. The terms had been pronounced by the United States government a violation of the ethnographic principle laid down in the Treaty of Versailles, and the United States government had officially refused to sanction a territorial aggrandizement of Poland at Russia's expense. The first payment to Poland under the treaty amounting in gold and jewels to 50,000,000 marks was received in the middle of December.

BURGENLAND. The Austrian authorities when they attempted to occupy Burgenland or Western Hungary under the treaty of Trianon encountered the resistance of Hungarian bands. A conference was appointed at Venice of French, British, Italian, Austrian, and Hungarian delegates for the settlement of the dispute, October 7. The result of this conference was that Austria agreed that the city of Oedenburg should decide for one country or the other by plebiscite. For a discussion of the subject, see **HUNGARY**, paragraph on *History*.

THE ALBANIAN FRONTIER. At the beginning of October the Geneva conference decided upon a new Albanian frontier. The decision seemed to have been reached in the spirit of fairness and the independence of Albania was recognized. Nevertheless the Albanians in the meeting of their high council decided that no alteration could be accepted in the boundaries laid down in 1918. It was decided that Albania would pay no attention to what the Powers had recommended. The award was also unsatisfactory in Jugo-Slavia and Serbian troops crossed the Albanian border. This brought a protest from the Albanian government to the League of Nations, and the protest was supported by the British government, November 8. On November 10, the Council of Ambassadors corrected the boundary line of the Albanian, Greek, and Serbian frontier, and the delegates from the countries concerned agreed to observe the decision of the League of Nations when it was rendered. The new line followed closely that which had been laid down at the ambassadors' conference in London in 1913. See **ALBANIA**.

VILNA. The League of Nations decided in March that the plebiscite plan should be abandoned in favor of direct negotiations between the disputing parties, and on April 21 the representatives of Poland and Lithuania held their first conference. On December 2 it was announced by the Polish Foreign Office that General Lucjan Zeligowski whose occupation of Vilna had lasted about a year had resigned as head of the administration, and that a civilian control had been substituted

with a former member of the Russian upper house at the head of it. Elections were to be held in the course of the month to decide whether the territory should be Polish or Lithuanian. The question of Vilna was not settled at the close of the year. The last stage of it at that time was the rejection by Lithuania of a proposal for the division of the city into two cantons, each to be self-governing.

DEBTS OF THE ALLIES TO THE UNITED STATES. The indebtedness of the Allies to the United States amounting to some \$10,000,000,000 continued to be the subject of much discussion and speculation during the year. From time to time the proposal was made that the United States should remit these obligations entirely. Varying arguments on both sides were brought forward in respect to the political consequences of such a course, and national and moral sentiment naturally figured largely in this aspect of the problem. As to the economic aspect the probabilities were much clearer and the situation from the economic point of view seemed comparatively simple. The main points in it were as follows: There was no foundation in fact for the superficial view that, assuming the debtor nations were solvent, the United States would receive the payment of the debts at their face value and that the \$10,000,000,000 might simply be set off against the national debt or the interest applied to the relief of taxation or to the payment of the soldiers' bonus, etc. Such a view assumes that international indebtedness is the same as indebtedness between individuals and can be settled in a simple cash transaction. This of course does not allow for any of the complexities of international trade. As economists have proved again and again for a century or more, debts between nations are in the long run settled in goods, that is to say, by the exportation of goods from the debtor nation over and above duties, etc., and unbalanced by corresponding exports from the creditor nation. The United States had more gold than it needed and the debtor nations had virtually no gold to spare. Therefore the debt had to be paid in goods exported either to the United States or to countries whose credit was accepted in the United States. This credit would necessarily in the long run have to be settled in goods exported to the United States, which would inevitably flood the United States with exports and injure the corresponding classes of American producers. If it amounted to only a small sum the United States market might absorb it without causing derangement, but the pouring in of exports in such a quantity was certain to disorganize the economic condition of any state engaged in private enterprise. Protectionists and Free Traders alike would hardly contemplate such a situation without concern. If Great Britain, for example, were to pay her debt in foodstuffs and raw materials the effect would be disastrous on the agricultural class in the United States. The United States producers could not be expected to abandon wheat growing, wool growing, sugar raising, etc., in favor of the producers in Canada, West Indies, and Australia. Nor could American industry support the flooding of the market with hundreds of millions of dollars worth of imported manufactures. These economic considerations prompted a number of writers to the recommendation that the United States should remit the debts on the ground that in the long run there would be more profit to

the United States from the resulting conditions of the international trade situation.

THE LITTLE ENTENTE. Poland entered the Little Entente, February 23, after the French and Polish governments had made a declaration, agreeing to take common measures of protection against the Bolsheviks. A new treaty pursuant to the policy of the Little Entente was signed by Jugoslavia on June 8 for the holding of Hungary and Bulgaria to the terms of their respective peace treaties.

TRIAL OF GERMAN WAR CRIMINALS. There were various trials at Leipzig of prisoners accused by the Allies of crimes during the war, but there were so many acquittals and the sentences of those convicted were so light that the French judicial committee which presented the cases withdrew, July 8.

WASHINGTON. POPULATION. According to the report of the census of 1920, there were 1,356,621 residents in the State, Jan. 1, 1920, as compared with 1,141,990 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	60,000	2,400,000	\$ 2,064,000
	1920	62,000	2,232,000	2,790,000
Oats.....	1921	210,000	10,500,000	4,410,000
	1920	210,000	9,786,000	7,046,000
Barley.....	1921	76,000	2,797,000	1,454,000
	1920	82,000	2,859,000	2,895,000
Wheat.....	1921	2,480,000	54,662,000	47,009,000
	1920	2,459,000	41,665,000	56,248,000
Hay.....	1921	1,038,000	12,666,000	27,835,000
	1920	1,008,000	11,991,000	36,553,000
Potatoes.....	1921	55,000	7,425,000	7,351,000
	1920	53,000	8,215,000	7,804,000

¹ Tons.

MINERAL PRODUCTION. The value of the gold, silver, copper, lead, and zinc produced from mines in Washington, according to the United States Geological Survey, was about \$356,000, as compared with \$1,200,932 in 1920. The output of metals was less than that for any year in the last decade, as the large producers found it impossible to operate under the peculiar market conditions. The prices of copper, lead, and zinc were unusually low, but freight rates and other expenses remained high. The mine production of gold increased from \$120,860 in 1920 to about \$148,000 in 1921. Most of the gold came from the Republic district, Ferry County, but the shipments of siliceous ore were restricted by high freight rates. The mine output of silver decreased from 199,678 ounces in 1920 to about 132,000 ounces in 1921. Mines at Republic, Nighthawk, Chewelah, and Colville produced most of the silver, but the quantity of silver produced from copper ore was unusually small. The mine output of copper decreased from 1,983,134 pounds in 1920 to about 402,000 pounds in 1921. The mine output of lead decreased from 5,787,247 pounds in 1920 to about 132,000 pounds, valued at \$6072, in 1921.

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Washington was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and

took account only on establishments conducted under the factory system. In this census also, as in that for 1914, statistics were not included for establishments having products for the census year valued at less than \$500, except that reports were taken for establishments idle during a portion of the census year, or which began operation during that year, and whose products for such reason were valued at less than \$500. The summary shows a consistent increase at the census of 1919, as compared with that for 1914. In the order of their importance from a percentage standpoint, the increases for the several items ranked as follows: Wages, 277.5 per cent; value added by manufacture, 237.1 per cent; value of products, 230 per cent; cost of materials, 224.4 per cent; salaries, 165.8 per cent; capital, 99.2 per cent; number of wage earners, 97.8 per cent; number of salaried employees, 65.1 per cent; primary horsepower, 47.1 per cent; proprietors and firm members, 33 per cent; and number of establishments, 28.5 per cent. The capital invested, as reported in 1919, showed a gain of \$275,410,000, or 99.2 per cent over that in 1914. The average capital per establishment was approximately \$112,000 in 1919 and \$73,000 in 1914. The cost of materials used in 1919 shows an increase over that for 1914 of \$306,593,000, or 224.4 per cent. The average cost of materials per establishment in 1919 was approximately \$90,000, and in 1914, \$36,000. The value of products in 1919 showed an increase over that in 1914 of \$564,309,000, or 230 per cent. The average per establishment in 1919 was approximately \$165,000 and in 1914 \$64,000. The value added by manufacture in 1919 shows an increase over that in 1914 of \$257,716,000, or 237.1 per cent. The value added by manufacture in 1919 formed 45.3 per cent of the total value of products and in 1914, 44.3 per cent. In 1919, as compared with 1914, the number of salaried employees showed an increase of 5266, or 65.1 per cent, while the average number of wage earners increased 65,727, or 97.8 per cent. The comparative summary for the State for 1914 and 1919 follows:

Fullerton; John F. Main, John R. Mitchell, Wallace Mount, O. R. Holcomb, Jenneth Mackintosh, Warren W. Tolman, J. B. Bridges.

WASHINGTON, UNIVERSITY OF. A co-educational State institution at Seattle, Wash., founded in 1861. The enrollment for the fall of 1921 was as follows: Liberal Arts, 1221; Science, 540; Business Administration, 1105; Education, 229; Engineering 648; Fine Arts, 343; Fisheries, 21; Forestry, 106; Journalism, 36; Law, 143; Library Science, 16; Mines 76; Pharmacy, 111; total, 4596. The summer quarter is divided into two terms of six weeks and had a total enrollment of 1930. There were 236 full time members in the faculty. The library contained 132,444 volumes. The total income for the year ending June 30, 1921, was \$1,769,449, 73 per cent of which was from State tax appropriation. The following new buildings were completed during the year: Stadium (\$400,000) with seating capacity of 30,000; Hydraulic Laboratory (\$62,526); Forest Products Laboratory (\$87,949); and Mines Laboratory (\$127,553). Education Hall, the fourth building in the new Liberal Arts quadrangle, was to be completed during the year 1921-22. The estimated cost was \$450,000, and it was designed to house the University Administration, the College of Education, the Department of Architecture, and contain draughting rooms for the College of Engineering. The University's standard of admission and of scholarship was raised by requesting high school principals to recommend only graduates who have made average grades of 80 per cent or better and by the passage by the faculty of the rules forbidding readmission for one quarter to the students who failed to secure, during the previous year, two-thirds of their grades above 75 per cent. President, Henry Suzzallo, Ph.D., LL.D.

WASHINGTON AND JEFFERSON COLLEGE. A non-sectarian institution of higher learning at Washington, Pa.; founded in 1802. The enrollment for the fall of 1921 was 455 and for the Summer School, 140. There were 27 members in the faculty with 4 additional members. The productive funds amounted to \$1,007,911 and

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	4,919	3,829	28.5
Persons engaged in manufactures.....	150,482	78,448	91.8
Proprietors and firm members.....	4,196	3,155	33.0
Salaried employees.....	13,354	8,088	65.1
Wage earners (average number).....	132,932	67,205	97.8
Primary horsepower.....	587,702	399,567	47.1
Capital.....	\$553,125,000	\$277,715,000	99.2
Services.....	225,757,000	63,207,000	257.2
Salaries.....	330,574,000	11,504,000	165.8
Wages.....	195,183,000	51,703,000	277.5
Materials.....	443,202,000	136,609,000	224.4
Value of products.....	809,635,000	245,326,000	230.0
Value added by manufacture (value of products less cost of materials).....	366,433,000	108,717,000	237.1

OFFICERS. Governor, Louis F. Hart; Lieutenant-Governor, W. J. Coyle; Secretary of State, J. Grant Hinkle; Auditor, C. W. Clausen; Treasurer, Clifford L. Babcock; Attorney-General, L. L. Thompson; Superintendent of Public Instruction, Josephine Corliss Preston.

JUDICIARY. Supreme Court: Chief Justice, Emmett N. Parker; Associate Justices: Mark A.

the income for 1920-21 to \$141,541. The library contained 32,952. Acting President, S. S. Baker.

WASHINGTON AND LEE UNIVERSITY. A non-sectarian institution of the higher education at Lexington, Va.; founded in 1749. The enrollment for the fall of 1921 was 747. There were 39 members in the faculty. The income funds totaled \$232,387. The library contained 50,000

volumes. The changes during the year included, one year academic work required for entrance to Law School; new Electrical Engineering Laboratory; new Electrical Engineering Department; addition to one dormitory. President, Henry Louis Smith.

WASHINGTON UNIVERSITY. A non-sectarian co-educational institution at St. Louis, Mo., founded in 1853. The enrollment for the fall of 1921 was 2540, and in extension courses, 1416. The faculty numbered 352. The productive funds amounted to \$9,517,380 and the income to \$1,138,552. The library contained 198,110 volumes. Gifts of the year included a swimming pool to be completed by March 1, 1922, and the sum of \$250,000 for a new Fine Arts building. Chancellor, Frederic Aldin Hall.

WATER POWER. See **POWER.**

WATER PURIFICATION. See **WATER-WORKS.**

WATER WHEELS AND TURBINES. The development of water power projects and the increased attention being paid to work in this field (see **POWER**) naturally had its effect on water wheels and turbines which in 1921 were being installed, built, or designed of greater capacities than ever before had been attempted. At Kern River Plant No. 3 of the Southern California Edison Co., two vertical-shaft 22,500 hp. Francis-type turbines, each operating under an effective head of 800 ft. were put into operation. This was the highest head ever attempted with this type of turbine, and it seemed probable that heads of 1000 feet would be employed in the near future with large units. There was also completed during the year two 40,000 hp. Francis single-runner reaction type turbines for the Mount Shasta Power Corporation designed to work under 421 feet head. But this was by no means the limit of capacity, for the Queenston development of the Hydro-Electric Power Commission of Ontario five 55,000 hp. reaction turbines were to be installed to operate under a head of 305 feet. The first of these turbines was about to be put into service at the end of the year. At the Pit River No. 1 plant of the Pacific Gas and Electric Co., of San Francisco, the plans called for 40,000 hp. reaction turbines to operate under 445 feet head. At the Muscle Shoals (q. v.) development the plans called for four 30,000 hp. turbines to operate under 95 ft. head. At the new Caribou station of the Great Western Power Co., at Belden, Calif., two of the largest impulse wheel-driven units ever installed were put in commission during the year. These were rated at 30,000 hp. each, each unit consisting of two independent wheels mounted on each side of the generator. These wheels operate under a head of 1008 feet at 171 revolutions per minute. As a hydro-electric installation depends in large measure upon the reliability and durability of the water wheels, designers and manufacturers were seeking to develop these qualities in connection with securing high efficiency over a considerable range of load; and gradual improvements were being secured.

In large power installations high-speed single-runner vertical machines were believed superior, but impulse turbines also were installed though of larger size, and these more costly and less efficient and on account of their shown speed, but in many respects most durable and reliable.

WATER-WORKS AND WATER PURIFICATION. Work continued on the Schoharie

Creek addition to the Catskill water supply for New York City, by means of which the water of the stream named will be impounded by the Gilboa dam and directed to the Ashokan reservoir for conveyance to the city through the Catskill aqueduct, already built. Work was also continued by the city of San Francisco on its Hetch Hetchy dam and aqueduct to provide a large city-owned supply—the city now being served by a private company. On the Great Lakes, works were under construction by Detroit and projected by Milwaukee, while at Buffalo, in November, the people voted \$4,000,000 to \$4,500,000 for a 160,000,000-gallon-a-day purification plant. Contracts for a 14,000,000-gallon purification works were let by Cambridge, Mass. The filters at all four of the cities last named will be of the mechanical or rapid type. The Cambridge filters will be the first mechanical filters, except for iron removal, built in Massachusetts.

WATSON, HENRY BRERETON MARRIOTT. British author died in London, October 30. He was born at Melbourne, Australia, in 1863. He became a resident of London after 1885 and was there for a long time prominent in journalism, being on the staff of various papers including the *Pall Mall Gazette* and the *National Observer*. His novels, of which there are more than twenty, include among others the *Princess Xenia*; *The Affair on the Island*; and the *King's Highway*.

WATTERSON, HENRY. Journalist, died at Jacksonville, Fla., December 22. For many years he was the best known journalist in the southern States often termed the sole survivor of the "old school" of journalism. He was born at Washington, D. C., Feb. 16, 1840, and educated chiefly by private tutors. His father was active in politics and young Watterson was surrounded from the first by a political atmosphere. He began journalistic experiments in his extreme youth and at the age of eighteen went to New York where he became a music critic for several local papers. Returning to Washington in 1859 he became private secretary to the founder of the *Washington Union* and afterwards its manager. During the war he served on the Confederate side chiefly as the result of family relations and not because he sympathized with slavery. Owing to a defect of vision he was not active in the field. While with the army he edited a paper entitled *The Rebel*, which criticised General Bragg and the latter obliged him to discontinue the paper. After the surrender he went to Cincinnati where he worked for the *Evening Times*. Thence in the autumn of 1865 he went to Nashville, and established there with others the *Republican Banner*, which soon became the leading journal of the city. In 1868 he became part owner of the *Louisville Journal* and under his direction it promptly acquired a great success. Soon afterwards it was consolidated with the *Courier*, taking the name of the *Courier-Journal* and became one of the leading papers of the South. Early in his editorial career as a spokesman for the southern democracy he urged the acceptance by the South of the political situation. He was always a great admirer of Lincoln whom he characterized as one of the best friends of the South; and he encouraged the education of the negro. He was a leader in the movement which led to the nomination of Horace Greeley and he was also prominent in the nomination of Samuel J. Tilden. He sat at all

the National Conventions of the Democratic party from 1872 to 1892 as delegate at large from Kentucky. At first he was a sharp critic of Colonel Roosevelt and he predicted the split in the Republican party as a result of the Roosevelt movement, but when the war began he strongly supported the latter's attempt to secure a command in the army. He was also a vigorous critic of Woodrow Wilson from the time of the latter's governorship of New Jersey and he blamed him for delaying the entrance of the United States into the war. Among his special aversions in latter years was woman suffrage and prohibition which he attacked in many censorious articles. His manner of writing was marked by the high colors and rhetorical embellishments which characterized the political eloquence of fifty years ago.

WATTS, ETHELBERT. Former consul-general died in 1921. He was born at Philadelphia, Pa., Feb. 25, 1845. He was consul-general in Brussels, Belgium, from 1907 to 1917. After an education in the private schools in Philadelphia, he studied in Paris, at the University of Pennsylvania, and at Freiberg, Saxony. Meanwhile he had served in the Civil War, enlisting as a private in the Pennsylvania volunteers at the age of seventeen during the time when Lee made his raid into Pennsylvania. He was in the consular service of the United States after 1896, holding positions at Horgan, Switzerland; Cairo, Egypt; Kingston, Jamaica (1899-1901); and Prague, Bohemia (1901-03). He was consul-general at St. Petersburg from 1903 to 1907. When the Spanish fleet entered the harbor of Port Said in an attempt to get coal, Mr. Watts who was then vice-consul-general at Cairo succeeded in preventing it, with the result that the fleet was ordered back to Spain. He received honors from the Japanese government for services to Japanese subjects during the Russo-Japanese war. In politics he was a Republican.

WEATHER BUREAU. See METEOROLOGY.

WEBSTER, HARRIE. Naval officer, died, April 23. He was born at Framington, Maine, Feb. 12, 1843; and entered the volunteer service of the navy, Feb. 18, 1862. He served under Farragut on the Mississippi river and was made third assistant engineer, May 20, 1864. He was wrecked on the *Vandalia* in the Samoan Islands, March 15-16, 1889. He was made chief engineer in 1892 and served on several vessels in that capacity. He was inspector of machinery and ordnance and was promoted captain, Jan. 4, 1903, and retired with the rank of rear admiral, Feb. 9, 1903.

WEDMORE, Sir FREDERICK. British author and critic, died, February 25. He was born at Richmond Hill, England, July 9, 1844, and educated in France and Switzerland; was a lecturer in the principal cities of England and at Harvard University and Baltimore, Md., in the United States. In England he devoted much of his time to the exposition of French art. He wrote a number of works of fiction, but his most important writings were critical and included a life of Balzac, various works on Whistler, a volume on the subject of etchings (1911) and a book of reminiscences (1912). For thirty years he held the position of chief art critic on the *Standard*.

WEED, SAMUEL RICHARDS. Insurance official, died in 1921. He was born in New York City,

Feb. 9, 1837; and after serving as agent of various fire insurance companies became vice-president of the Liberty Insurance Company, New York City. He was the author of the following volumes: *Handbook of Fire Insurance* (1894); *Norwalk to Norway* (1905); *Personal Recollections of Early San Francisco* (1908); *New and Improved Book on Forms for Fire Insurance Companies* (1909).

WEKERLE, ALEXANDER. See NECROLOGY.

WELLESLEY COLLEGE. An institution of the higher learning for women at Wellesley, Mass.; founded in 1875. The enrollment in 1921 was 1551 and the faculty numbered 134. President, (Miss) Ellen Fitz Pendleton, Litt.D., LL.D.

WELSH LANGUAGE. See PHILOLOGY.

WENDELL, BARRETT. University professor and literary critic and historian, died at Boston, Mass., February 8. For many years he held the chair of literature at Harvard. He was born at Boston, Mass., August 23, 1855, graduated at Harvard in 1877 and became an instructor in English at Harvard in 1880, rising to a professorship in 1898. He retired in 1917. He lectured at French universities and in England and was among the best known teachers of English literature of his day. The most discussed of his writings is *The Literary History of America* (1900) which aroused criticism on the ground that it tended to lower the rating of the principal American authors. Among his other writings may be mentioned, *William Shakespeare, A Study in Elizabethan Literature* (1894); *History of Literature in America* (1904); *The Temper of the Seventh Century in English Literature* (1904); *The France of Today* (1907); *The Privileged Classes* (1908); *The Mystery of Education* (1909).

WESLEYAN METHODIST CONNECTION IN AMERICA. An outgrowth of the Wesleyan Methodist denomination which was founded at Utica, N. Y., in 1843 and debarred from its membership all persons connected with slavery, with the manufacture or sale of intoxicants, or members of secret societies. Incomplete statistics for 1921 show there were 20,778 communicants, and 529 churches, with a property valuation of \$787,731. Sunday school statistics are for 1919 and show 521 schools with an enrollment of 30,193 pupils and 2174 officers and teachers. Foreign missionary work of the denomination is conducted in Sierra Leone and India; work in Japan was started in 1919 and considerable progress was reported during the past year. Home missions are maintained in Alabama and among the Blue Ridge Mountains. Colleges are maintained at Houghton, N. Y., Central, S. C., and Miltonvale, Kan. There is a Theological School of the denomination at Fairmount, Ind.

WESLEYAN REFORM UNION. See METHODISTS, WESLEYAN.

WESLEYAN UNIVERSITY. A non-sectarian institution for the higher education of men at Middletown, Conn.; founded in 1921. The enrollment in the fall of 1921 was 536 (the number being limited by the trustees and a gradual reduction effected). The faculty numbered 59, assistant professors in English and physics being added in the course of the year. The library contained 127,000 volumes. The productive funds were \$2,840,659, and the income was \$141,884. In December the campaign for a \$3,000,000 increase of endowment was nearly completed,

only \$250,000 remaining to be raised. President, William Arnold Shanklin, L.H.D., LL.D.

WEST POINT. See UNITED STATES, MILITARY ACADEMY.

WEST VIRGINIA. POPULATION. According to the report of the census of 1920, there were 1,463,701 residents in the State, Jan. 1, 1920, as compared with 1,221,119 in 1910.

AGRICULTURE. The following table is compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	592,000	20,128,000	\$15,096,000
	1920	600,000	20,400,000	23,664,000
Buckwheat.....	1921	31,000	682,000	559,000
	1920	32,000	624,000	874,000
Oats.....	1921	210,000	4,620,000	2,402,000
	1920	200,000	5,400,000	4,266,000
Wheat.....	1921	250,000	3,125,000	3,656,000
	1920	253,000	3,162,000	6,008,000
Tobacco.....	1921	8,000	16,000,000	1,400,000
	1920	10,000	18,000,000	2,000,000
Hay.....	1921	738,000	882,000	15,389,000
	1920	729,000	911,000	21,940,000
Potatoes.....	1921	48,000	4,080,000	6,550,000
	1920	47,000	5,640,000	7,614,000
Sorg. syrup.....	1921	8,000	760,000	760,000
	1920	9,000	900,000	1,215,000

¹ Pounds.

² Tons.

³ Gallons.

OFFICERS. Governor, E. F. Morgan; Secretary of State, Houston G. Young; State Treasurer, Wm. S. Johnson; State Auditor, John C. Bond; Attorney-General, E. T. England. See UNITED STATES.

WEST VIRGINIA, UNIVERSITY OF. An institution of the higher education at Morgantown, W. Va.; founded in 1867. The enrollment for the fall of 1921 was 1744, and for the summer session, 1050. The faculty numbered 154 and the library contained 71,000 volumes. President, Frank Butler Trotter, LL.D.

WESTERN AUSTRALIA. One of the states of the Commonwealth of Australia, extending from the Indian ocean to the Northern Territory and South Australia; the largest of the states, with an area of 975,920 square miles. The population was estimated, Dec. 30, 1920, at 336,058, as compared with 329,920, Sept. 30, 1919; the males numbered 179,393 and the females, 156,665. Capital, Perth, with a population (including suburbs) estimated, Dec. 31, 1919, at 142,000. Executive power is vested in a governor who acts through a responsible ministry; and legislative power, in a parliament of two houses. The legislative council of 30 members, elected for six years; and the legislative assembly of 50 members, elected for three years. Governor at the beginning of 1921, Sir F. A. N. Newdegate; Prime Minister, James Mitchell. See AUSTRALIA.

WESTERN RESERVE UNIVERSITY. A non-sectarian institution of the higher learning at Cleveland, Ohio; founded in 1825. The enrollment for the fall of 1921 was 2201, and for the summer session, given in connection with the Cleveland School of Education, 1373. The faculty numbered 298. The library contained 105,170 bound volumes. The productive funds amounted to \$4,119,798 and the income to \$178,235. During the year the College for Women started a new course in nursing by which young women were to be trained for the higher positions in the nursing profession. The course was offered in connection

with the various hospitals of Cleveland. The Household Administration Department of the College for Women was established in a building of its own. In June the gift of Mr. Samuel Mather, of Cleveland, of \$500,000 assured the removal of the Medical School of Western Reserve University to land adjoining the other college buildings at University circle. The group of medical buildings as planned, were to include Lakeside Hospital, the Maternity Hospital, and the Babies' Dispensary and Hospital. The president, Dr. Charles F. Thwing, after thirty-one years of service resigned, November 11, and the election of his successor was pending at the close of the year. Acting president at that time, Dr. James D. W. Williamson.

WETMORE, GEORGE PEABODY. Former governor of Rhode Island and United States Senator, died, September 11. He was born at London, Eng., August 2, 1846; graduated at Yale in 1867, and at the Columbia Law School in 1869. He was governor of Rhode Island from 1885 to 1886 and from 1886 to 1887, and United States Senator from 1895 to 1913. In politics he was a Republican.

WHEAT. In 1921 the world, with the exclusion of Russia, regained its normal status in the distribution and transportation of wheat, but production still remained below the prewar basis although some recovery over the preceding year and the 5-year period 1915-19 was made. The International Institute of Agriculture, Rome, published provisional estimates placing the yields of some of the more important wheat-producing countries as follows: Canada, 329,435,000 bu., France, including Alsace-Lorraine, 322,771,000 bu., British India, 250,469,000 bu., Italy, 192,839,000 bu., Spain, 143,205,000 bu., Germany, 97,866,000 bu., Roumania, 96,779,000 bu., and England and Wales, 69,784,000 bu. It was estimated that the yields of thirty reporting countries aggregated 2,754,905,000 bu., or 7 per cent above the production of the same countries in 1920.

Argentina in 1920-21 produced 169,757,000 bu., and the harvest of Australia in 1921-22 was estimated at 146,614,000 bu. The wheat crop of British India, which is harvested in April, was about one-third less in 1921 than in 1920, due to a severe drought accompanied by hot winds and also to a decrease in acreage by about 17 per cent. With Russia, which formerly produced about 800,000,000 bu. yearly, down to famine conditions and with British India a possible importer instead of exporter, the probability of over-production stands far removed, although European consumption will be under the prewar average for some time. Germany's imports for ten months of the past fiscal year were about 75 per cent of her prewar purchases. The Government of India prohibited the export of wheat flour until the end of March, 1922, and also took other protective regulations to tide over the period of a short wheat supply.

As estimated by the Department of Agriculture, the United States, in 1921, produced 794,893,000 bu. on 62,408,000 acres or at the rate of 12.7 bu. per acre, while in 1920, 833,027,000 bu. were produced on 61,143,000 acres, the average rate per acre being 13.6 bu. The average farm value on Dec. 1, 1921, was only 92.7 cts. per bu., as compared with 143.7 cts. the corresponding value

in 1920, and with 214.9 cts. in 1919. Based on these prices the total value of the 1921 crop was \$737,068,000, the 1920 crop \$1,197,263,000, and the 1919 crop \$2,080,686,000. The total value in 1921 was \$460,195,000 below the average value in 1920 and \$1,343,018,000 below that in 1919. These figures forcibly illustrate the crisis through which American agriculture is passing.

Of the area in wheat in 1921, 42,702,000 acres were winter wheat and 19,706,000 acres were spring wheat. The yield of winter wheat was 587,032,000 bu. and of spring wheat 207,861,000 bu. The average yield of winter wheat was 13.7 bu. and of spring wheat 10.5 bu. per acre. The area sown to winter wheat in the fall of 1921 according to a preliminary estimate was 44,293,000 acres, or 98.8 per cent of the acreage sown the preceding year. Kansas reported an area of 11,569,000 acres, followed by Nebraska with 3,954,000 acres, Oklahoma with 3,550,000 acres, and Missouri with 3,058,000 acres.

The wheat requirements of the United States at this time are placed at 635,000,000 bu., so that the production of 1921 left about 160,000,000 bu. as exportable surplus. During the first half of 1921 the United States exported 123,223,821 bu. of wheat and 8,074,884 bbl. of flour. Argentina during the same period exported 48,195,091 bu. as compared with 154,273,683 bu. during the corresponding period of 1920. Canadian exports for the six months ending February, 1921, amounted to 101,967,991 bu. and 3,558,518 bbl. of flour, of which the United States took nearly 40,000,000 bu. and over 900,000 bbl. of flour. A new development in Canadian exports in 1921 was the commercial shipment of a cargo of wheat from British Columbia to London by way of the Panama Canal, which reached its destination in excellent condition. Another feature was the unusually heavy movement of wheat over the Great Lakes and through the Welland Canal. By the middle of July 20,000,000 bu. of wheat had passed that way on their way to Europe. This was considered due to the high freight rates for rail shipments. Ocean rates on wheat from New York to Liverpool in November, 1921, were quoted at 16 cts. per 100 lbs. as compared with 31 cts. in November, 1920, and 8 cts. in November, 1913.

The United States Department of Agriculture estimated that the average loss due to Hessian fly in this country amounts to about 1,300,000 bu. and the loss due to the green bug to about 750,000 bu. Experiments conducted by the Department indicated that 1 per cent of sweet clover seed in the wheat may flavor the flour and the bread. The following publications relating to wheat culture were issued during the year: Dockage Under the Federal Wheat Grades,—Farmers' Bulletin 1118; Varieties of Winter Wheat Adapted to the Eastern United States,—Farmers' Bulletin 1168; The Green Bug or Spring Grain Aphis,—Farmers' Bulletin 1217; Wheat scab and its Control,—Farmers' Bulletin 1224; Take-all of Wheat and Its Control,—Farmers' Bulletin 1226.

WHEAT DISEASES. See BOTANY.

WHITE, ALFRED TREADWAY. Philanthropist, died at Brooklyn, N. Y., January 30. He was widely known for his work in promoting and directing tenement-house improvement. He was born at Brooklyn, N. Y., May 28, 1846, and graduated at the Brooklyn Polytechnic Institute in 1862. After 1866 he was a merchant in New

York. He began to study the homes of the working classes in 1872 and in 1876 he caused the building of the first successful group of improved tenement houses. This was followed by the erection of similar buildings and also by work for the relief of poor children in summer. He was prominent in various associations pertaining to charity and improving the condition of the poorer classes.

WHITE, EDWARD DOUGLASS. Chief Justice of the United States, died at Washington, D. C., May 19. He had been Chief Justice for eleven years preceding his death. He was born at Lafourche, La., Nov. 3, 1845, the son of a former governor of that State, and was educated at Catholic colleges in Maryland and Louisiana and at Georgetown University, Washington, D. C. During the Civil War he served in the Confederate army and at its close was admitted to the bar in Louisiana, where he practiced law from 1868 to 1874 when he was elected to the Louisiana legislature. After 1878 he was justice of the supreme court of Louisiana until 1891 when he was chosen United States Senator. From the Senate in 1894 he was appointed Associate Justice of the Supreme Court and was made Chief Justice, December 12, 1910. He was distinguished for his thorough training and wide knowledge of the law. His general attitude was conservative and based on profound reverence for the views of the founders of the republic.

WHITNEY, MARY WATSON. Former professor of astronomy at Vassar College, died at Waltham, Mass., January 20. She was born at Waltham, Mass., Sept. 11, 1847, graduated at Vassar in 1868 and studied at the University of Zürich. She was professor of astronomy and director of the observatory from 1889 to 1910, and after that emeritus professor and she wrote extensively for the astronomical periodicals.

WHITNEY, WILLIAM FISKE. See NECROLOGY.

WHITTLESEY, CHARLES W. American officer in the late war, known as the leader of the "Lost Battalion," disappeared from the steamship *Tolosa* bound for Havana, November 26 and believed to have been drowned. He was born in 1885, studied at Williams College and prepared himself for the practice of the law. During the war he was with the American troops in the Argonne and his battalion having lost its way and suffered heavy casualties, he was left the sole in command and displayed extraordinary courage and endurance in extricating the remnant of the forces from their danger. It was known as one of the most heroic actions of the American Expeditionary Forces. After the war he practiced law in New York City. The suffering that he had seen in France preyed on his mind and he was reticent on the subject of his experience. It was reported that his mental depression had been deepened by the ceremonies of the burial of the Unknown Soldier on Armistice Day. There were evidences that he had carefully planned suicide, letters being left by him indicating the exact condition in which he had left his office affairs and he had made his will. He engaged a stateroom on board the vessel above mentioned without informing any of his relatives or friends of his intention.

WHOOPIING COUGH. This contagious disease continues to be one of the great sources of mortality throughout the world by reason of the fatal

pneumonia which it sets up. The contagium is too volatile to prevent the diffusion of the disease and all the efforts of the profession are centred on the discovery of a cure or at least a remedy which will shorten the course, diminish the severity of the disease, and prevent complications. Passive immunization against catching the disease has proved impracticable and active immunization by means of a vaccine has been tested with discordant results. In addition to preventive vaccines curative preparations, both specific and nonspecific, have been extensively tested. In the Children's Clinic of the University of Naples an extensive test has recently been undertaken with a specific vaccine prepared from the Bordet-Gengou bacillus, the accepted cause of the disease. Of the 196 cases treated 133 recovered completely within a specified time, 41 were improved during the same period, and 14 only have remained stationary. A few children developed bronchopneumonia with no fatal terminations. Many children withdrew from treatment, which fact explains the large number marked "improved." The period during which vaccination was practiced varied from a few days to 30 days and the average duration of treatment seems to have been about 10 days. The author's table does not give the stage or day of the disease when treatment began, but states that the earlier the disease the more marked the benefit, although old cases as well as recent profit. It would not be wise to rely on vaccination alone, and the author among other resources mentions the effects of ether injections, which have been extensively tested in different countries. He tested it in 24 cases without seeing any evidence of curative properties. *La Pediatria*, Nov. 15, 1921.

WHYTE, ALEXANDER. Scotch minister and educator, died at Hampstead, London, January 6. He was Principal of New College, Edinburgh, from 1909 to 1918. He was born near Strathmore, Scotland, Jan. 13, 1837, the son of a shoemaker, and served in his boyhood as an apprentice shoemaker. Having studied in his spare hours, he fitted himself as a teacher in a village school. Through the financial aid of friends in the parish, he was enabled to enter the University of Aberdeen where he graduated. He then studied theology at New College and upon graduation rose rapidly in the ministry. In 1873 he became minister of the largest congregation in the Free Church, retaining that office for twenty-two years, and in 1898 he was made Moderator. While serving as the Principal of New College, 1909-18, he made many addresses on behalf of the British cause during the war. Among his writings are *The Four Documents; Bible Characters; The Spiritual Life; The Apostle Paul; Thirteen Appreciations*.

WILCOX, SIDNEY FREEMAN. Surgeon, died in 1921. He was born at Fort Atkinson, Wis., August 13, 1855; and was professor of clinical surgery at the New York Medical College and the Hospital for Women from 1895 to 1915. He was consulting surgeon also for various other hospitals in New York City and elsewhere.

WILLIAM AND MARY, COLLEGE OF. A co-educational State institution at Williamsburg, Va.; founded in 1693. The enrollment for the fall of 1921 was 620, and for the summer session, 583. The faculty numbered 36 of whom 6 were added during the year. The library

contained 20,000 volumes. The State appropriation was \$66,000. During the year a new dormitory for women was completed at a cost of \$200,000. President, J. A. C. Chandler, LL.D.

WILLIAMS, WILLIAM ELZA. See NECROLOGY.
WILLIAMS COLLEGE. A non-sectarian institution for the higher education of men at Williamstown, Mass.; founded in 1793. The enrollment for the fall of 1921 was 583, and the faculty numbered 53. The productive funds amounted to \$3,484,276 and the income to \$376,937. The library contained 94,885 bound volumes. A new library building, Stetson Hall, was approaching completion. An important session of the Institute of Politics was held there in the summer months, attended by leading representatives of the United States and foreign countries. (See *POLITICS, INSTITUTE OF*.) President, Harry Augustus Garfield, LL.D.

WILSON, SIR ARTHUR KNYVET. British admiral, died at Norfolk toward the end of May. He was born at Norfolk, March 4, 1842, entered the navy in 1855 and served during the Crimean War. He took part in the operations off the coast of China in 1857 and 1858. He served in Far Eastern waters again in the 60's and in 1881, having reached the rank of captain, was attached to the Mediterranean fleet. He participated in the bombardment of Alexandria. In 1884 he won the Victoria Cross for gallantry at El Teb. In 1895 he was promoted to the rank of admiral, commanded the first torpedo manœuver in which destroyers were largely employed. He was appointed Third Sea Lord on the Board of Admiralty in 1897. Besides ability as an administrator, he showed a high degree of mechanical skill, inventing improvements in ordnance, etc. After 1901 he was employed in the highest commands and finally was made commander-in-chief of the home fleet. He was highly regarded as a tactician and as a strategist. In 1907 when he had reached the age of retirement, a special Order in Council gave him the rank of admiral of the fleet which carried with it five more years of service on the active list. He succeeded Lord Fisher as First Sea Lord of the Admiralty. The reforms demanded by Lord Beresford were not carried out during Admiral Wilson's tenure of office, but in 1911 the government planned to put these reforms into effect and Mr. Churchill was appointed First Lord for that purpose. Thereupon Sir Arthur Wilson retired from office.

WINDWARD ISLANDS. The group of West Indian islands consisting of Grenada, St. Vincent, and St. Lucia together with Grenadines (which are one-half under St. Vincent and one-half under Grenada), forming the eastern limit of the Caribbean sea, belonging to Great Britain. Governor and commander-in-chief at the beginning of 1921, Sir G. B. Hoddon-Smith.

WIRELESS TELEGRAPHY. See RADIO-TELEGRAPHY AND TELEPHONY.

WISCONSIN. POPULATION. According to the report of the census of 1920, there were 2,632,067 residents in the State, Jan. 1, 1920, as compared with 2,333,860 in 1910.

AGRICULTURE. The following table was compiled from the estimates of the United States Department of Agriculture for the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn.....	1921	2,110,000	97,482,000	\$44,842,000
	1920	2,067,000	89,294,000	68,758,000
Oats.....	1921	2,632,000	63,958,000	21,106,000
	1920	2,408,000	107,878,000	52,880,000
Barley.....	1921	473,000	10,642,000	5,427,000
	1920	502,000	15,913,000	13,367,000
Wheat.....	1921	214,000	2,812,000	2,727,000
	1920	341,000	5,152,000	7,934,000
Clover seed.....	1921	124,000	211,000	2,089,000
	1920	172,000	327,000	3,760,000
Rye.....	1921	328,000	4,756,000	3,377,000
	1920	385,000	6,160,000	8,008,000
Tobacco.....	1921	48,000	61,488,000	7,686,000
	1920	50,000	62,400,000	16,162,000
Hay.....	1921	3,428,000	4,573,000	67,627,000
	1920	3,422,000	5,667,000	111,531,000
Potatoes.....	1921	315,000	21,420,000	20,349,000
	1920	308,000	33,264,000	28,607,000
Sor. syrup.....	1921	2,000	140,000	196,000
	1920	6,000	450,000	810,000

1 Pounds.

1 Tons.

1 Gallons.

DRAINAGE. The accompanying table gives a summary of the drainage conditions of the State at the census of 1920:

	Amount	Per cen of total
DRAINAGE ON FARMS		
Number of all farms in the state.....	189,295	100.0
Farms reporting land having drainage.....	21,838	11.5
Farms reporting land needing drainage.....	52,228	27.6
All land in farms.....	acres.. 22,148,223	100.0
Improved land in farms.....	acres.. 12,452,216	56.2
Farm land reported as provided with drainage.....	acres.. 658,411	3.0
Farm land reported as needing drainage.....	acres.. 1,839,273	8.3
DRAINAGE ENTERPRISES		
Approximate land area of the state.....	acres.. 35,363,840	100.0
All land in operating drainage enterprises.....	acres.. 794,569	2.2
Improved land.....	acres.. 254,504	0.7
Timber and cut-over land.....	acres.. 177,744	0.5
Other unimproved land.....	acres.. 362,321	1.0
Capital invested in and required for completion of operating enterprises.....	\$4,564,625	100.0
Capital invested in these enterprises to Dec. 31, 1919.....	4,163,055	91.2
Additional capital required to complete these enterprises.....	401,570	8.8

MANUFACTURES. A preliminary statement of the general results of the 1920 census of manufactures, covering the year 1919, for the State of Wisconsin was issued by the Bureau of the Census. The census of manufactures, 1919, like that of 1914, excluded the hand trades, the building trades, and the neighborhood industries, and took account only of establishments conducted under the so-called factory system. The table at bottom of page summarizes the census of manufactures in 1919 with corresponding figures for 1914.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Modifications increasing stringency of child

labor laws; provision for a juvenile department for care of dependent, defective, and delinquent children; requiring "citizenship" to be taught in public schools; increasing the duration of compulsory part-time education; provision for equal guardianship of minor children; increasing the rate of the inheritance tax; provision for the submission of a constitutional amendment providing for five-sixths jury verdicts in civil cases; establishment of free county libraries; provision for State retirement system for teachers in public and normal schools and universities; authorizing cities of the second and third class to provide for police women; according women the same rights and privileges as men in respect to suffrage; freedom of contract; jury service, holding office, and the care and custody of children.

OFFICERS. Governor, John J. Blaine; Lieutenant-Governor, Geo. H. Comings; Secretary of State and State Auditor, Elmer S. Hall; State Treasurer, Henry Johnson; Attorney-General, Wm. J. Morgan.

WISCONSIN, UNIVERSITY OF. A co-education State institution of the higher education at Madison, Wis.; founded in 1848. The enrollment for the fall of 1921 was 7344, the most numerous attended courses being: Letters and Science, 4942; Engineering, 1249; and agriculture, 835. The enrollment for the summer school was 4558 of whom 3505 were in Letters and Science. The faculty numbered 1005 as compared with 927 in the fall of 1920. The library contained 335,500 volumes. The income for the year was \$4,682,115. Work on the new medical school was begun, the sum of \$10,000,000 having been appropriated for this purpose. President, Edward A. Biagg, Ph.D., Sc.D.

	Census—		Per cent of increase, 1914-19
	1919	1914	
Number of establishments.....	10,394	9,104	14.2
Persons engaged in manufactures.....	319,331	230,273	38.7
Proprietors and firm members.....	7,951	7,425	7.1
Salaried employees.....	46,160	28,538	61.7
Wage earners (average number).....	265,220	194,310	36.5
Primary horsepower.....	880,904	682,339	29.1
Capital.....	\$1,372,723,000	\$754,287,000	82.0
Services.....	378,220,000	149,762,000	152.5
Salaries.....	87,849,000	37,569,000	133.8
Wages.....	290,371,000	112,193,000	158.8
Materials.....	1,130,752,000	417,415,000	170.9
Value of products.....	1,883,608,000	695,172,000	171.0
Value added by manufacture (value of products less cost of materials).....	752,856,000	277,757,000	171.0

WOLLISTON, Sir HARRY. Australian official, died at Melbourne, Australia, in February. He was the first Comptroller-General of the department of Trade and Customs of the Commonwealth. He was born in Western Australia Jan. 17, 1846, and was in the civil service of Victoria from 1863 to the time of federation. His career was identified with the establishment of the customs machinery of the Commonwealth and with the administration of the tariff acts. In 1907 he was the Australian representative at the Imperial Shipping Conference in London.

WOMAN'S CHRISTIAN TEMPERANCE UNION. The annual convention of the National Woman's Christian Temperance Union was held at San Francisco, Calif., August 18-23. In 1919 the Union commissioned its president, Miss Anna A. Gordon and Miss Julia F. Deane, the editor of the *Union Signal*, which is the official organ of the society, to make a world-wide trip and survey of W. C. T. U. activities in European and South American lands. The result of this investigation was reported to the 1921 convention. In 1919 the organization entered upon a Jubilee Campaign for \$1,000,000 and 1,000,000 members. There were 34,116 new members reported in 1921. The lines of endeavor of the Union are of six kinds: Organization, preventive, educational, evangelistic, social, and legal. The work is carried on through numerous branches. The Young People's Branch aims to train and establish young people in total abstinence and prohibition. It maintains a staff of field secretaries and in 1921 requested the national organization to establish a scholarship in the Danforth Memorial Hospital at Kiukiang, China. Considerable progress was reported by the Loyal Temperance Legion; 500 legions were organized during the year and an intensive campaign was carried on against tobacco. The department of Americanization conducts a six weeks' course of study during April and May in the Training School at Chicago. In addition the department has a corps of superintendents and workers in the field. Splendid work was conducted in mining camps and much literature distributed among the various foreign-born settlements of the country. Aggressive work along the lines of the use of drugs and tobacco was reported by the Anti-Narcotics department for 1921. The programme of the department of Child Welfare was carried out successfully and its scope greatly broadened. It gave its indorsement to the support of the Sheppard-Towner Bill pending in Congress and providing for federal aid in the care of maternity and infancy by the States. The various unions reported 1524 as working the evangelistic department; many meetings were held, Bible classes organized, and literature distributed. Reports of the department of Prison Reform showed a constantly increasing interest in the work: more than 3600 men and families were aided, many evangelistic services held and total abstinence pledges taken. The Publicity department of the Union publishes each month a *Bulletin* of W. C. T. U. news and items of general interest. The department of Social Morality reported having reached 40,000 persons through lecturers, films, and exhibits. The department of Women in Industry was organized in 1920. Its work is centred among employed women where meetings are carried on with the aid of maps, posters, and motion pictures. Officers

for 1921-22 are: Miss Anna A. Gordon, president; Mrs. Ella A. Boole, vice-president-at-large; Mrs. Francis P. Parks, corresponding secretary; Mrs. Elizabeth Preston Anderson, recording secretary; Mrs. Sara H. Hoge, assistant recording secretary, and Mrs. Margaret C. Munns, treasurer. Headquarters are maintained at Evanston, Ill.

WOMAN'S RELIEF CORPS. Local societies of this organization were established in 1872, which had for its purpose war relief work among members of the Grand Army of the Republic and their families. The national organization was founded in 1883 and had for its object, "to assist the G. A. R. in caring for their comrades and dependent ones; to perpetuate the memory of their heroic dead; to cherish and emulate the deeds of the army nurses and all loyal women who rendered service to our country in her hour of peril; to maintain true allegiance to the United States of America; to inculcate lessons of patriotism; and to encourage the spread of universal liberty and equal rights to all." It distributes patriotic literature and presents many flags to communities and organizations throughout the country.

A national convention is held each year. In 1920 the convention was held in Indianapolis, when the membership was reported to be 194,211. The organization conducts the ceremony at naturalization proceeding of pinning on the lapel of the coat of the new citizens small American flags and presenting them with larger flags for the home. Officers in 1921 were: Inez J. Bender, president; Flo J. Miller, secretary; Estella E. Plopper, treasurer. Headquarters are maintained at 218 Citizen's Bank Bldg., Decatur, Ill.

WOMEN IN INDUSTRY. Owing to the cessation of war manufacture and depressed business conditions which obtained during the year the number of women engaged in the industries of the United States was no longer over 11,000,000 as it was in 1919, but more nearly resembled the 1910 figures of 8,000,000. Nevertheless women in industry were holding a position of recognized importance; the Women's Bureau of the Department of Labor which was created as a war service was made permanent on June 5, 1920. The Bureau described its duties as follows: "The Women's Bureau is charged with the responsibility of developing policies and standards and conducting investigations in the industries of the country which shall safeguard the interests of women workers and thus make their service effective for the national good. It represents and advises the Secretary of Labor in all matters concerning women in industry and is charged with maintaining close contact with other agencies which deal with special phases of the problem, including other divisions of the Department of Labor. It works with and through State departments of labor." It explains the greater necessity for control of the standards of women by the fact that women have been in a weaker position economically than have men.

In a bulletin published by the Bureau in 1920 (*The New Position of Women in American Industry*) appear facts which should answer the question: "Has the war permanently enlarged the orbit of woman's industrial power in the United States?" Before the war there were five principal industries employing women—textile, personal apparel, food products, tobacco-manufacture, and hand and foot wear—during the war

women were employed in other crafts from which they had practically been debarred up to that time; they were particularly successful in the rubber, electrical, leather, and metal-working trades, and in the opinion of the Bureau: "The success attending the emergency employment of women in occupations requiring a high degree of skill and the expansion of commercial trade has resulted in the retention of women in most of these crafts and industries since the close of the war, and bids fair to encourage a larger use of woman labor in the future."

It is interesting to note that in general it was found that where the work was very rough or dirty, women did not succeed so well. Lumbering, for instance, and saw mill work and crane operating were cited as kinds of work for which women usually were unfitted. In regard to this last mentioned occupation, it was a curious fact that while women ordinarily disliked the conditions of the work, when one was found who did not share this objection, she was apt to prove singularly successful. "When an efficient woman was secured who could do the work and liked it, she seems to have made an exceptionally fine crane operator. She is reported to be a better judge of distance, to be quicker, to be more careful of the lives of the workers beneath her, and to meet with fewer accidents. At the Watertown arsenal the men in the forge shop requested that the women crane operators be retained. Two of the seven firms covered which reported on their 1919 labor force retained their crane women. As a whole, however, this did not prove to be an occupation especially well adapted to women."

In the matter of protective legislation for women there seem to be two opinions: the one desiring to surround women with all possible legislative protection; the other holding that good working conditions should be secured for all workers, but that women should not be handicapped by restrictions not imposed on men unless, as in the case of exposure to lead poisoning, it can be shown that such restrictions are necessary in the interest of their special function in the race. At the present time it would seem that the latter opinion was held in greater favor. For California in 1921 enacted a law which placed the maximum weight which female employees may be permitted to lift without mechanical aid at 74 pounds, while similar laws, previously passed, establish the following limits: Ohio and Pennsylvania, 15 pounds; New York, 25 pounds; and Massachusetts, 40 pounds. New York authorized the recodification committee to investigate the advisability of empowering the industrial board to fix the hours of women and minors within statutory limitations; it no longer prohibits women proof readers from doing night work; and permits women to operate wet grinding wheels under conditions specified by the industrial board. Massachusetts, New Jersey, and New Mexico passed laws during the year concerning the hours of labor. Massachusetts extended the law limiting women's hours to nine a day and forty-eight a week, to laundries, hotels, manicuring, and hair dressing establishments, motion picture theatres, elevator operators, and switch-board operators in private exchanges.

New Jersey reduced the maximum number of weekly working hours for women to manufacturing or mercantile establishments, bakeries, laundries,

or restaurants from sixty to fifty-four. Under certain conditions hotels and canneries of perishable products are exempt, but mercantile establishments are no longer exempt for one week before Christmas. New Mexico regulated women's hours for the first time. It establishes an eight-hour day for women in mechanical establishments, factories, laundries, hotels, restaurants, eating houses, and places of amusement; but excepts clerical workers, women in canneries, mercantile establishments, drug stores, and those engaged in transportation or public utility business. For a summary of recent studies on the extent of the eight-hour day as well as a summary of industrial opportunities and training for women and girls, see the 1920 YEAR BOOK.

FOREIGN. Argentina. The recently organized Social Federation of Women (*Confederación Social Feminina*) in Argentina has for one of its chief objects the establishment of trade schools for women and girls in order to teach the elements of the manual trades, thus making more women economically independent and enlarging the sphere of their activities. Thus far it has organized two such schools, one of which has an attendance of 40 girls, who are learning to make men's and women's clothing, baskets, etc.

Germany. A report of the German Ministry of Labor indicates that Germany has to deal with the same problems of women's labor as do other countries. An attempt is being made to train women for peace work. The Germans instituted in 1919 courses for general housework, children's nurses, dressmakers, waitresses, typists, and secretaries. All women up to 35 years of age who are in receipt of the unemployment allowance must attend one of these courses, otherwise the allowance is forfeited. There is a special woman's division in the ministry of labor which is responsible for these matters, the aim being to fit women to earn their living independently and not to allow them to subside into a condition of "being spoon-fed at the expense of the community."

A survey of the demand for woman labor in 1920 brings out three characteristic facts. First, although the demand varies greatly in the individual occupational groups, there is a uniform undersupply of skilled and semiskilled workers, which cannot be lessened by training unskilled workers in short-term courses during periods of unemployment, but only through systematic vocational training of the female youth. A second characteristic is the lack of sufficient workers in all occupations which require that the worker live in the household of the employer. This aversion will cease if both contracting parties coöperate and if the new domestic service law be so formulated that its provisions combine domestic discipline with a certain degree of personal liberty. The third problem is the great number of women forced to earn their living who have dependents of whom they must take care. This problem can be solved only individually through the social energy and circumspection of the employment office.

Great Britain. In May it was reported that the Central Committee on Women's Training and Employment, a standing committee appointed by the Minister of Labor, would soon put into operation a scheme for giving intensive training in the domestic arts to unemployed

women between the ages of 18 and 35. Recent legislation restricts the employment of women and young persons in plants in which lead and zinc and other poisonous materials are produced or manipulated, and institutes the two-shift, 8-hour system for women. This second provision was strongly opposed because it extended the hours during which women might be employed from 8 p. m. to 10 p. m. When this bill first came before the House of Commons in May, 1920, the workers conducted so strong a fight against the extension of the hours that the clause permitting it was dropped. The Government thereupon postponed action upon the bill until a departmental committee appointed to inquire into the proposed change could make its investigation and report. In November this committee presented its report, which was favorable to the change in hours, and the passage of the bill followed.

WOMEN'S CLUBS, GENERAL FEDERATION OF. There has been no appreciable change in the membership numbers of this organization since 1920 when there were approximately 2,600,000 members. The Federation has clubs in every city, town, and most of the villages, composed of "thinking, serious-minded women meeting together regularly with a definite programme which undertakes to reach the full community problem." It has fourteen national organizations affiliated with it and seventeen clubs in foreign countries. The advent of woman suffrage has made the clubs feel a greater responsibility and interest in their work.

The Federation holds a Biennial Convention; it was held in Des Moines, Iowa, in 1920 and will be held at Chautauqua, N. Y., June 21-30, 1922, the Institution there being given over to the General Federation ten days before opening for the season. A meeting of the Council of the Federation was held in Salt Lake City, June 13-18, 1921. Important events of the year were the establishment of a new committee on International Relations, with Mrs. Charles Evans Hughes as Honorary Chairman, and Mrs. Horace Mann Towner, Acting Chairman; and the appointment by Pres. Harding of the President of the General Federation, Mrs. Thomas G. Winter, as one of the four women on the Advisory Committee at the Washington Conference for the Limitation of Armament. A course of study is being prepared by the International Relations Committee on the subjects growing out of the conference, and its endeavor will be to bring women of the world together in "friendly relations" and in consultation on problems looking toward universal peace. A committee on Friendly Relation with the ex-Soldier, of which Mrs. George W. Plummer is chairman, was reported to have done excellent work during 1921. The Federation has purchased in Washington the home of Gen. Nelson A. Miles, 1734 N. Street, for permanent headquarters. After April 1, 1922, it is to become the executive, social, distributing and legislative headquarters. No assessment is made on either state federations or clubs, they being asked to contribute voluntarily. A campaign for funds was under way late in 1921.

The officers for 1920-22 are: President, Mrs. Thomas G. Winter, Minneapolis; first vice-president, Mrs. W. S. Jennings, Jacksonville, Fla.; second vice-president, Mrs. J. R. Scher-

merhorn, East Orange, N. J.; recording secretary, Mrs. Adam Weiss, Del Norte, Colo.; corresponding secretary, Mrs. George W. Plummer, Chicago; treasurer, Mrs. Benjamin B. Clark, Red Oak, Iowa; auditor, Mrs. H. A. Guild, Phoenix, Ariz. The official organ of the Federation is *The General Federation Magazine*. Headquarters are maintained in the Maryland Bldg., Washington, D. C. Miss Ida Hafford is director.

WOODHULL, MAXWELL VAN ZANT. Author, soldier, and diplomat, died, at Watkins, N. Y., July 28. He was born at Washington, D. C., Sept. 17, 1843, and studied at Miami University and at the Law School of Columbia University, Washington; he served in the Civil War, rising through the successive grades to the rank of lieutenant-colonel in 1864. He was breveted brigadier-general of volunteers, March 18, 1865, for faithful service. He was in the army of Virginia and Tennessee and on the march to the sea and was adjutant-general of the Fifteen Army Corps during the South Carolina campaign. After the war he held an office in the Department of State and later became the director of various industrial companies. He wrote *The Campaigns of Sherman Fifty Years Ago* (1914); *West Point in our Next War* (1915).

WOOD PULP. See PAPER.

WOOL. See LIVE STOCK.

WOOL AND WORSTED. See TEXTILE MANUFACTURING.

WORCESTER MUSIC FESTIVAL. See Music, Festivals.

WORCESTER POLYTECHNIC INSTITUTE. A non-sectarian institution for the higher technical education of men at Worcester, Mass.; founded in 1865. The enrollment for the fall of 1921 was 498 of whom 124 were in electrical engineering, 104 in mechanical engineering, 47 in civil engineering, and 46 in chemistry. The faculty numbered 60, and the library contained 18,200 volumes. President, Ira Nelson Hollis.

WORKMEN'S COMPENSATION. The year 1921 marked ten years of workmen's compensation in the United States, for on July 4, 1911, the first operative compensation law became effective, in the State of New Jersey. From that date till successive States adopted this policy, Dec. 1, 1921, forty-three States had compensation laws on their statute books, the States of North Carolina, South Carolina, Florida, Arkansas, and Mississippi being the exceptions. From the very beginning revisions and amendments were made in these various laws; owing to the fact that while all these laws were alike in principle there was considerable difference in details. An interesting review that appeared in the *Insurance Annual of the Journal of Commerce* (New York) contains the following: "They differ as regards the maximum and minimum compensation benefits to be paid. They differ as regards waiting period during which no compensation payments are made; they differ as to the occupations covered; they differ as respects the period over which medical aid shall be given and as to the cost of such medical aid. Some laws apply only to accidents suffered in the State in which the laws are effective, while others provide for the payment of the compensation irrespective of where the injury may have been sustained. Some provide for occupational diseases contracted during the course of employment, others do not.

"There are countless other points of differences, but through it all there runs the thought that the workingman should be compensated for at least part of the economic loss resulting from industrial accident."

The field of workmen's compensation naturally has extended and grown and the compensation business as reported by insurance companies jumped from \$14,268,876 in 1913 to \$141,552,665 for 1920, while all casualty insurance business showed written premiums of \$122,430,768 for 1913 as against \$445,336,789 for 1920. In other words, in 1913 compensation insurance increased eight-fold, while all premiums for all casualty insurance lines, including compensation, increased three and one-half times.

The following summary of the laws of 1921 is condensed from that appearing in the *American Labor Legislation Review* for December.

FEDERAL LEGISLATION. Additional hospital and dispensary facilities for treatment of war cases were authorized, an appropriation of \$18,600,000 was made for this purpose. In effect, March 4. The only new workmen's compensation act of the year was that of Missouri, which was passed to replace the one repealed by referendum. It is compulsory as to the State and its subdivisions and elective as to private employments. This act has been suspended from operation by referendum petition, and will not be voted upon until Nov. 7, 1922. Acts supplementary to existing laws were passed by 30 States and Porto Rico. The more important changes are as follows:

Colorado. Public institutions, boards, etc., are not subject to the workmen's compensation act unless they employ four or more persons. Penalties are revised. In effect, April 4.

Connecticut. Law extended to cover all salaried officers or paid members of municipal police and fire departments. Maximum payment in cases of total disability raised. In effect, July 1.

Delaware. The schedule of specific injuries is extended. Surgical, medical, and hospital care is to be furnished for one month instead of two weeks. In effect, April 1.

Idaho. Caretaking and handling of live stock on inclosed lands and public ranges are included under "agricultural pursuits" and consequently employees so engaged are not covered by the workmen's compensation act. Total disability benefits raised 5 per cent of wages. Payments for specific injuries are made additional to other compensation payments. Deafness is added to the schedule. The definition of "workman or employee" no longer excludes persons earning \$2400 a year. In effect, May 4.

Illinois. Law revised. Maximum death benefit increased. Employees engaged in work in which sugar of lead, white lead, lead chromate, lethane, red lead, arsenate of lead, or paris green is used or made, or in the manufacture of brass or the smelting of lead or zinc, who are disabled by occupational diseases resulting from such work, come within the provisions of the workman's compensation act. In effect, July 1.

Michigan. Municipal employees entitled to accident benefits under special funds as well as under the compensation act may not benefit under both. Resident employees injured outside the State may benefit under this act if their contracts of hire were made in the State. In effect, August 17.

Minnesota. Employers of farm labor may elect to come under the workmen's compensation act, but employees may elect not to accept its provisions. Twenty-three occupational diseases have been included under the compensation act. The maximum for total disability is increased from \$15 to \$18. Compensation for serious disfigurement is provided. The list of injuries constituting total disability is extended. In effect, June 1.

Montana. The allowance for medical and hospital services and medicines is doubled. Compensation of 120 weeks is to be paid for total loss of hearing in both ears. In effect, July 1.

Nebraska. Employees working in employments not conducted for gain or profit are no longer excluded from the compensation act. Maximum disability benefit is raised. The specific injury schedule is revised. In effect, July 28.

Nevada. Volunteer firemen belonging to a recognized fire department are to be entitled to compensation on the basis of a \$150 monthly wage. In effect, March 22.

New Jersey. Non-resident alien dependents are no longer deprived of death benefits under the compensation act. In effect, July 1.

New Mexico. Medical benefits are raised from \$50 to \$150. In effect, June 10.

New York. All powers and duties under the workmen's compensation law are conferred upon the industrial board. In effect, March 9. The recodification committee is authorized further to revise the workmen's compensation law. In effect, April 16.

North Dakota. Executive officers who receive salaries of more than \$2400 a year are not considered employees. In effect, July 1.

Ohio. The workmen's compensation law is extended to cover 15 occupational diseases. In effect, August 4.

Oregon. Railroad companies may elect to be subject to workmen's compensation for all hazardous work carried on by them except actual operation of railroads. The benefit scale for temporary total disability is revised. Minors employed at an unlawful age are subject to this act. In effect as to benefits, July 1, as to remainder, May 25.

South Dakota. Death benefits are not payable to dependents who were non-resident aliens at the time of the death of the deceased. Maximum weekly benefit is raised from \$12 to \$15. The right to operate under some substitute insurance plan is extended to cover operators of threshing machines. In effect, June 2.

Texas. Act amended to exclude specifically ranch laborers, who were included by court decision. In effect, March 12.

Utah. If an accident is due to willful failure of the employer to comply with safety laws and orders, 15 per cent is added to the usual compensation except in case of death benefits. Similarly, except in case of death benefits, compensation is reduced 15 per cent if the accident was due to failure of employee to use safety devices provided or to obey safety rules and orders, or to his intoxication. Only half benefits shall be paid to non-resident alien dependents. In effect, July 1.

Washington. General warehouse and storage, transfer, drayage, hauling, fruit warehouse, and packing house work are included under the workmen's compensation act. Only one-half death benefits are payable to non-resident alien

dependents, and if the compensation law of the native country of such dependents discriminates to a greater extent against citizens of the United States then no compensation is payable. In effect June 8.

Wisconsin. Employers may include under the compensation act domestic and other employees not covered. In effect, July 2.

Wyoming. The workmen's compensation law is extended to city and town firemen and policemen. It is no longer inoperative until an employee has worked one month for a given employer. All actual dependents are now eligible for benefits. The benefits are revised and increased. County attorneys are directed to give necessary legal advice to injured workmen or their dependents who seek aid in making compensation claims. The State treasurer is directed to print instructions to assist workmen in making claims. In effect, April 1.

Porto Rico. The compensation act is extended to cover municipal firemen and the exemption for employers of less than three laborers is canceled. Occupational disease is included under the act. The benefits are revised. In effect as to section 4, July 14, as to remainder of act, October 12.

WORLD'S CROPS. See AGRICULTURE.

WOTHERSPOON, WILLIAM WALLACE, United States army officer, died at Washington, D. C., October 21. From 1907 to 1909 he was president of the Army War College and in April, 1914, he succeeded General Leonard Wood as Chief of Staff. He was born at Washington, D. C., Nov. 16, 1850, and entered the army from civil life in 1873, serving many years in Indian fighting. He went to the Philippines in 1899 with the Twelfth Infantry and passed three and one-half years there. On his return to the United States he was engaged on staff duty and was made brigadier-general under President Roosevelt. During the administration of Governor Whitman of New York, he was Commissioner of Public Works, having been chosen especially for supervision of the State's canal system.

WOUNDS, TREATMENT OF. Professor Albrecht of Vienna, recently summed up the present status of wound treatment as founded on recent military experience (*Medical Record*, Jan. 7, 1922). Mere cleanliness or simple asepsis was found to be quite inadequate to control wounds already badly infected and this resource has therefore lost ground in comparison with antiseptics. While, as heretofore, it was found that treatment could not sterilize tissues already contaminated—save when it is permissible to cut them away—it also became apparent that the class of remedies called antiseptic may produce the desired results indirectly by stimulating the defensive forces of the tissues. By which is meant that the so-called phagocytosis and lymphorrhea provoked by these substances are equal to the task of purifying the tissues by a gradual process. The more superficially placed bacteria are antagonized by proper drainage and irrigation, along with the use of ultraviolet light. Tincture of iodine is now the standard drug used for this purpose. Gause dressings exert a suction on the wound, which gives the same general result as irrigation; and more surgeons use moist than dry dressings. Hot air, and dry heat in general, while exerting a salutary influence on inflammation tend to dry and cool the wound surface and hence should be carefully watched and these effects antagonized.

Sunlight is of value for its ultraviolet rays. Of chemical substances all of the remedies in active use belong under iodine and its compounds, chlorine and compounds, quinine derivatives, and aniline derivatives. Wounds are called recent when inflicted within 6 or 8 hours. When older they are spoken of (in military practice) as infected and when they have failed to unite, are called granulating wounds. The latter alone benefit by ointment dressings. The modern treatment of wounds as based on combined civil and military experience may be summed up neither as asepsis or ordinary antiseptics but as autoantiseptics—that is, the tissues are stimulated to make their own defense against bacteria.

WRECKS. See SAFETY AT SEA.

WRESTLING. Stanislaus Zbyszko of Poland won the world's wrestling championship in 1921 through his defeat of Ed "Strangler" Lewis in a match held in New York City. The victory of the Pole came as a big surprise as he is 46 years old, several years older than the rival he overthrew.

The annual tournament of the Amateur Athletic Union was held at Los Angeles, Calif., in April, the winners of the final bouts being: 108 pounds, Carl Benson, Swedish-American A. C., New York; 115 pounds, Joseph Troyer, Redlands University; 125 pounds, Robin Reed, Multnomah A. C., Portland, Ore.; 135 pounds, J. J. Humerich, Los Angeles A. C.; 145 pounds, R. J. Vis, Los Angeles A. C.; 158 pounds, Charles Johnson, Swedish Gymnasium, Boston; 175 pounds and heavyweight, Fred Meyer, Chicago Hebrew Institute.

Penn State College won the intercollegiate championships held at Princeton, N. J., in March with a total of 24 points. Cornell was second with 13 and Princeton third with 10. The individual winners were: 115 pounds, Watson, Penn State; 125 pounds, Garber, Penn State; 135 pounds, Hart, Columbia; 145 pounds, Morrison, Princeton; 158 pounds, McBride, Cornell; 175 pounds, Spangler, Penn State; unlimited class, Carpenter, Princeton.

WRIGHT, GEORGE FREDERICK. Educator, died, April 20. He was born at Whitehall, N. Y., Jan. 22, 1838; graduated at Oberlin College in 1859 and at Oberlin Theological Seminary in 1862. He served five months in the Civil War in 1861, and was pastor of churches in Vermont and Massachusetts until 1881 when he became a professor in the faculty of the Oberlin Theological Seminary. From 1892 to 1907 he was professor of the harmony of science and religion. He was also an expert in geology, and from 1884 to 1892 was assistant geologist on the United States Geological Survey. He wrote a variety of works on Christian evidence and the authority of the Bible, including: *Scientific Aspects of Christian Evidence* (1898); *Scientific Confirmation of Old Testament History* (1906); and several geological works, including: *Man and the Glacial Period* (1892); *Origin and Antiquity of Man* (1912); also, *History of My Life and Work* (1916). He was editor of *Bibliotheca Sacra* after 1884.

WRIGHTSON, Sir THOMAS. British industrial magnate and physicist, died, June 18. His name as a physicist is due to his theory of hearing propounded in a book entitled *The Analytical Mechanism of the Internal Ear*. He was born at Darlington, England, March 31, 1839, and educated at Kings College, London. After serving as a civil engineer he joined the firm afterwards known as Head, Wrightson and Company, which

was one of the largest iron-manufacturing establishments in the country. He was also a director in other industrial enterprises. He became the Conservative candidate for his borough and after a persistent struggle succeeded in winning the election in 1892 when he was returned to Parliament as a Unionist. He lost his seat in 1895 but was again in Parliament from 1899 to 1907. His work on hearing above mentioned was published in 1918 and grew out of a presidential address before a body of engineers delivered forty-two years before. His theory was accepted by a number of specialists and in 1921 was under consideration by many experts.

Crop	Year	Acreage	Prod., bu.	Value
Oats	1921	150,000	4,500,000	1,710,000
	1920	115,000	4,370,000	2,709,000
Wheat	1921	199,000	3,424,000	2,705,000
	1920	198,000	3,920,000	5,292,000
Hay	1921	928,000	1,423,000	10,478,000
	1920	942,000	1,624,000	20,086,000
Potatoes	1921	19,000	2,052,000	2,421,000
	1920	15,000	1,875,000	2,250,000

¹ Tons.

IRRIGATION. The accompanying table issued by the United States Bureau of the Census summarizes irrigation conditions at the census of 1920 with corresponding figures for 1910:

	1920	1910
Number of all farms	15,748	10,987
Approximate land area of the state	acres.. 62,430,720	62,460,160
All land in farms	acres.. 11,809,351	8,543,010
Improved land in farms	acres.. 2,102,005	1,256,160
Number of farms irrigated	6,449	6,297
Area irrigated	acres.. 1,207,982	1,133,302
Area enterprises were capable of irrigating	acres.. 1,831,039	1,639,510
Area included in enterprises	acres.. 2,564,668	2,224,298
Per cent irrigated:		
Number of all farms	41.0	57.3
Approximate land area of state	1.9	1.8
Land in farms	acres.. 10.2	13.3
Improved land in farms	acres.. 57.5	90.2
Excess of area enterprises were capable of irrigating over area irrigated	acres.. 623,057	506,208
Excess of area included in enterprises over area irrigated	acres.. 1,356,686	1,090,996
Area of irrigated land reported as available for settlement	acres.. 197,326	.....
Capital invested	\$34,326,328	\$17,700,980
Average per acre enterprises were capable of irrigating	18.75	10.80
Estimated final cost of existing enterprises	51,500,288	20,425,890
Average per acre included in enterprises	20.08	9.18
Average cost of operation and maintenance per acre	1.04	0.86

WURLITZER SYMPHONY ORCHESTRA.

See MUSIC, *Orchestras*.

WURTEMBERG. One of the constituent states of the former German empire; proclaimed a republic in November, 1918; and forming part of the new German state; situated between Bavaria on the east and Baden on the west. Area, 7534 square miles; population (1910) 2,437,574; (1920), 2,526,171. Largest city, Stuttgart, with a population in 1919 of 309,197. The interests are chiefly agricultural, and 64 per cent of the area is under cultivation. The yield in metric tons of the principal crops in 1920 was as follows: Oats, 129,755; wheat, 96,577; barley, 113,440; spelt, 83,093; rye, 33,874; potatoes, 753,170. The wine production in 1902 was 3,476,318 gallons, and the beer production, 29,148,746 gallons. The Diet at the last election preceding 1921 was distributed among the political groups as follows: German National Party, 28; Centre, 23; Social Democrats, 17; German Democratic Party, 15; Independent Socialists, 8; Communists, 6; German Popular Party, 4. President in 1921, Dr. Johannes Hiebert (elected, June 23, 1920).

WYOMING. POPULATION. According to the report of the census of 1920, there were 194,402 residents in the State, Jan. 1, 1920, as compared with 145,965 in 1910.

AGRICULTURE. The following table was compiled from the estimates of the United States Department of Agriculture covering the years 1920 and 1921:

Crop	Year	Acreage	Prod., bu.	Value
Corn	1921	56,000	1,232,000	\$616,000
	1920	50,000	1,200,000	672,000

MINERAL PRODUCTION. Owing to the low price of copper the Sunrise iron (copper) mine at Hartville was idle for a part of 1921 and shipped no copper ore during the year, according to the United States Geological Survey. The Electrolytic (old Rambler) mine at Holmes shipped one car and stored several cars of copper-gold-silver ore.

LEGISLATION. Among the measures passed at the legislative session of 1921 may be mentioned: Creation of a State farm loan board and provision for loans on farm mortgages out of certain State funds; coöperation with United States Bureau of Biological Survey for extirpation of noxious animals; provision for organization and sanitation of dairy product business; declaiming places used for prostitution, gambling, or the sale of intoxicating liquors to be a nuisance; creation of a State game and fish commission and provisions for the preservation of game and fish; authorizing State board of education to promote Americanization as defined by law; creation of the office of inheritance tax commissioner.

OFFICERS. Governor, Robert D. Carey; Secretary of State, W. E. Chaplin; Treasurer, A. D. Hoskins; Auditor, I. C. Jeffers; Superintendent of Public Instruction, Katherine A. Morton; Attorney-General, William L. Walls; Adjutant-General, R. L. Esmay.

JUDICIARY. Supreme Court: Chief Justice, Charles N. Potter; Justices, Charles C. Blydenburgh, Ralph Kimball.

WYOMING, UNIVERSITY OF. A State institution of the higher education at Laramie, Wyo.; founded in 1886. The enrollment in 1921 was 525 and the faculty numbered 90. President, Aven Nelson, Ph.D.

Y

YACHTING. Great Britain and Canada carried off the honors in international yacht racing during 1921, but there were no contests held for the America's Cup. The first international clash came in July off Cowes, England, where the United States made a vain effort to capture the trophy offered for six-metre boats by the Royal Yacht Squadron. The Americans suffered an overwhelming defeat, their only entry to make a respectable showing being the *Glebe*, owned by William Gardner. The second international competition was that between the United States and Canada with the fishermen's trophy as the prize. The races were held off Halifax, the contestants being the *Bluenose* commanded by Captain Angus Walters of Canada and the *Elsie*, commanded by Captain Marty Welch of the United States. The *Bluenose* won two straight victories.

The customary racing on Long Island Sound furnished the keenest of sport during the summer, the greatest attraction being the contests held by the New York Yacht Club. George M. Pynchon's *Istalea* proved the best fifty-footer, taking part in nineteen races. The *Acushla*, owned by L. G. Hamersley ranked second, and the *Spartan* owned by H. B. Plant received third rating. Among the forty-footers the best record was made by F. D. M. Strachan's *Monsoon*. The competition for the Gherardi Davis prize restricted to thirty-footers was won by Ogden Reid's *Lena*.

The United States successfully defended the Harmsworth Trophy, emblematic of the world's motor boat speed championship, but it was a hollow victory for the American boat, the *Miss America II*. The *Maple Leaf VII* entered by Sir Mackey Edgar of the Royal Motor Yacht Club of Great Britain sprang a leak during the first race and later sank. The *Miss America II* also had the satisfaction of setting a world's record averaging 71.04 miles an hour.

YALE UNIVERSITY. A non-sectarian institution of the higher learning at New Haven, Conn.; founded in 1701. The enrollment for the fall of 1921 was 3460, including 355 students who were not candidates for degrees. Of those studying for degrees 1042 were in Yale College; 515 in the Sheffield Scientific School; 373 in the Graduate School; 213 in the School of Law; and 163 in the School of Medicine. The officers of the university numbered 747 of whom 172 were administrative. The library contained 1,200,000 volumes and pamphlets. The total endowment, June 30, was \$25,677,010, and the income for the year 1920-21, \$2,899,184. The creation of a common undergraduate year in Yale College and the Sheffield Scientific which was begun in 1920 proved a marked success in offering better teaching and attention to the individual through the Faculty Counselor system. Incidentally there was a very large increase in the enrollment of the Freshman Class which in 1921 numbered 862. The building programme was steadily carried on. The Memorial Quadrangle, described as the most

beautiful group of college buildings in this country, was completed and was being occupied by the Junior and Senior Yale College classes, during the year. The Sterling Chemical Laboratory, made possible by the Sterling bequest, was in course of construction. Another Sterling memorial building which is to be started in the near future was the Sterling Memorial Library. James Rowland Angell began his administration as successor to President Arthur Twining Hadley at the beginning of the university year. President, James Rowland Angell, Litt.D., LL.D.

YAP. One of the Caroline Islands in the Pacific; the administrative centre of the western group; the seat of an important wireless station; and subject of disputed claims on the part of the United States and Japan in 1920 and 1921, in regard to which an agreement was reached at the close of the latter year. Its importance arises from the fact that it is the meeting point of the oceanic cable lines to Manila, Shanghai, and the island of Celebes. The main points in the dispute are given in the preceding YEAR BOOK. For terms of the agreement, see article, WAR OF THE NATIONS.

YARGER, HENRY LEE. Clergyman, died, January 13. He was born at Harleton, Pa., Feb. 22, 1862; and graduated at the Pennsylvania College at Gettysburg in 1883 and at Gettysburg Theological Seminary in 1886, in which year he was ordained to the Lutheran ministry. He was pastor of several parishes successively in Kansas and Pennsylvania; president of the Kansas synod from 1901 to 1903 and of the synod of the Evangelical Lutheran Church in the United States from 1913 to 1914. From 1895 to 1914 he was field secretary of the board of church extension of the Lutheran church at Atchison, Kansas, and after that was general superintendent of home missions and church extension at Chicago, Ill.

YELLOW FEVER. The discovery by Noguchi of a spirillum which is the specific cause of this affection has not been set aside by anything which has since come to light. At Havana cultures of the so-called "Merida strain" of this germ supplied by its discoverer to the Health Office produced when injected into the tissues of dogs a febrile affection which agreed in essential features with human yellow fever. When the virus was pricked into the skin in imitation of mosquito bites a severe form of the disease was set up. In regard to the incidence of the disease in Mexico and Central America it is evident that a clean bill of health at any given period is no guarantee that new cases will not appear sooner or later. This has recently been distressingly shown by the death from the disease of Dr. Howard B. Cross of the Rockefeller Institute of New York, who sailed for Vera Cruz in November to take charge of the Institute's laboratories in that city. The Mexican Government officially recognized the martyrdom of the scientist in the pursuit of the common good of man. Particulars of the case at the present writing are lacking. The mode in which

the diseases was contracted and the attempts to save the victim have not thus far been made public. It is not known, for example, whether any prophylactic or curative serum was employed.

YOUNG, JOHN PHILIP. Editor, died at San Francisco, Calif., April 23. He was born at Philadelphia, Pa., August 9, 1849; and after 1878 was the editor of the *San Francisco Chronicle*. He wrote: *A History of San Francisco; Protection and Progress; Journalism in California*; and various economic works, including: *The Growth of Modern Trusts*.

YOUNG, ODUS GRAHAM. Lawyer, died in 1921. He was born in Ray County, Mo., Jan. 20, 1858; and after a normal school education, studied law, and was admitted to the bar in 1882, and practiced in Kansas City. He was president of a large cattle company after 1900 and of the Drovers' Packing Company at Kansas City after Nov. 7, 1919. He was a member of the Missouri senate from 1896 to 1900. In politics he was a Democrat.

YOUNG MEN'S CHRISTIAN ASSOCIATION. An organization for the promotion of social, physical, educational, and spiritual development of men and boys throughout the world. The various groups of local associations are closely related to the 47 State and Canadian committees who give counsel, help, and encouragement to the local work. The International Committee is the agent of these local and State organizations, created by convention action, to help unify, correlate, and promote the movement as a whole in North America. The headquarters of this committee is at 347 Madison Avenue, New York City. Its chairman is Alfred E. Marling and its general secretary, John R. Mott. The 2120 local organizations in the United States and Canada had a total membership of 935,581. The net property valuation was \$140,822,000 and expenditures in 1921, \$47,814,000. The International Committee was busy during the year striving to carry out the directions of the triennial international Convention of 1919. The five regional organizations in the United States, each combining both the State and international representatives of the territory involved, have been developed and improved with helpful results to the local associations within their borders. The commission on work among colored men and interracial questions made progress in meeting some of its difficult problems. The commission on the approach and relation to the churches made most encouraging progress in its conferences with the officials of the various church bodies and with beneficial results for all. In all important aspects of the Association's work there was a gain over the preceding year. The volume of work in the United States and Canada has doubled since 1912, and some features have doubled since 1917. The \$140,821,300 of net property and funds reported was an increase of 10 per cent over the year before. Of this total amount \$12,200,800 is in endowment funds. The \$47,814,451 of operating expenditures for the movement in North America is at the rate of nearly \$1,000,000 per week, or 24 per cent more than a year ago, and more than double the similar amount of only four years ago. During the year the Associations continued their readjustment of meeting the changed conditions following the war. The great majority not only reached but passed the figures measuring the volume and quality of their service rendered in the fruitful years 1915-17, preceding the war. In the face of adverse business conditions some important results were

achieved in building campaigns, or clearing off indebtedness. It is noteworthy that in the recent severe financial depression none of the railroad and very few of the industrial corporations reduced their regular contributions to Association operation. Very substantial progress was made toward raising the \$4,000,000 accrued liability fund necessary to enable the Retirement Fund for Employed Officers to become operative. Over one-half of this fund is now secured, and the present hope is that it will be completed and become operative in 1922.

ASSOCIATION WAR WORK. The National War Work Council having accomplished one of the greatest patriotic services in the history of the world was formally dissolved in March, 1921. It appointed a group of trustees closely related to the International Committee to take care of and administer in clearly designated lines any unexpended balances carried forward largely from the second Association War Work campaign. The educational service among ex-service men made possible by the \$5,000,000 awarded by the National Council, has been exceedingly large in volume, widely scattered geographically, of practical quality, and greatly beneficial to all concerned. Over 81,000 men were thus enrolled, 13,000 of whom took collegiate courses. This service was supplemented by a large Americanization work among other thousands, and also by the most practical vocational guidance service in connection with the employment of ex-service men which has yet been conducted. Very few realize the great extent of Association work still in operation among the allied armies and their ex-service men through Europe and adjacent countries. Although this service is being demobilized as fast as possible, yet American secretaries are still directing, and American Association funds are still financing a service of Christian welfare work on behalf of at least two million men. For such purpose overseas, the past year, more than seven million dollars of American funds were thus necessary.

INTERNATIONAL FOREIGN ASSOCIATION WORK. In each of the twenty-one foreign countries in which Association work has been organized and promoted by American friends through the Foreign Department of the International Committee, encouraging progress is noted. The growth of the local and national foreign organizations, of their membership, officers, property, and especially of their activities—educational and religious—is relatively more rapid than in America and costs only a fraction as much per member for local operation. The adaptation of this foreign service to local conditions, its indigenous character, its ability to mark out new paths, and its sacrificial spirit, all make for vitality and permanence.

YUKON. A territory of Canada, bounded by Alaska on the west, and the Northwest Territories on the east, and extending from British Columbia at the 60th parallel to the Arctic ocean. Area, 207,076 square miles. Population in 1911, 8512. Capital, Dawson, with a population in 1911 of 3013. Mining is the chief occupation, and the chief minerals are: Gold, coal, copper, and silver. The gold mined from 1885 to 1918 amounted to \$198,000,000, and the output for the year ending March 31, 1921, was \$1,660,048. It is under the administration of a gold commissioner and a legislative council of three members. Gold commissioner at the beginning of 1921, George P. MacKenzie. See CANADA.

Z

ZACH, MAX WILHELM. Musician, died at St. Louis, Mo., February 3. He was born at Lemburg, Poland, August 31, 1864; and studied at the Conservatory of Music in Vienna. He came to the United States in 1886, and from that time until 1907, was a member of the Boston Symphony Orchestra. After 1907 he was conductor of the St. Louis Symphony Orchestra. While in Boston he was a conductor of many popular concerts.

ZAHM, JOHN AUGUSTINE. Scientist and author, died at Munich, Bavaria, November 11. In the United States he was well known as an authority on South America and was a friend of Theodore Roosevelt, whom he accompanied on his South American expedition. He was born at New Lexington, Ohio, June 14, 1851; graduated at Notre Dame University, Ind., in 1871, and was for many years curator of the museum of the university and head of its scientific department. He delivered many lectures in the United States on the subject of evolution and wrote largely on that topic. Among his writings may be mentioned besides various works representing an advanced point of view in respect to evolution, *Catholic Science and Catholic Scientists*; *Scientific Theory and Catholic Doctrine*; *Science and the Church*; works on geography and travel including volumes on Alaska, and Hawaii; special historical and descriptive writings on the countries of South America; and finally in 1917 *The Great Inspirers*.

ZANZIBAR. A British protectorate of East Africa, comprising the island of Zanzibar (640 square miles), the island of Pemba (380 square miles), and several islets; situated off the coast of the colony of Tanganyika (formerly German East Africa). Population of the island of Zanzibar (1910), 113,624; of Pemba, 83,109. The Europeans numbered about 200, mostly English. The chief town is Zanzibar, one of the best African ports, with a population of about 35,000. Most of the natives are Sunnite Mohammedans. School attendance in 1919 was 1920. The main industry is the production of cloves of which the output in 1919-20 was about 29,000,000 lbs., larger than ever before. Imports (1919, £1,934,169; exports, £2,444,011. Revenue (1919), £407,505; expenditure, £323,418. Sultan in 1921, Seyyid Khalifa bin Harub; High Commissioner, Major-general Sir Edward Northey.

ZELENSKI, LADISLAS. Polish composer, died in Cracow, January 26. He was born at Grotkowice, Galicia, July 6, 1837. For many years he was professor of composition at the Warsaw Conservatory. Next to Moniuszko he ranks as the foremost dramatic composer of Poland. His works include five operas on national subjects, orchestral and chamber-music and songs; also several valuable theoretical treatises.

ZEPPELINS. See **AERONAUTICS**.

ZIEL, ERNST. See **NECROLOGY**.

ZINC. The following information was supplied by the United States Geological Survey: The mine and smelter output of zinc each declined

nearly 60 per cent in 1921. The recoverable zinc content of ore mined in 1920 was about 250,000 tons, as compared with 584,772 tons in 1920 and 549,242 tons in 1919. The output of the Eastern States was about 68,000 tons, that of the Central States about 168,000 tons, and that of the Western States about 14,000 tons, as compared with 102,242, 337,652, and 144,878 tons respectively in 1920. The loss in output of the Eastern States was one-third, that of the Central States one-half, and that of the Western States over nine-tenths. The Upper Mississippi Valley region is credited with an output of about 4000 tons and the Joplin district with an output of about 164,000 tons. Oklahoma made the largest output, about 116,000 tons, twice as large as that of any other State. In 1921 Montana (the Butte district almost wholly) apparently produced about 11,000 tons, as compared with 91,906 tons in that district in 1920.

The imports of zinc in ore decreased from 22,487 tons in 1920 to about 2700 tons in 1921, most of which was imported from Mexico. The zinc content of zinc ore in bonded warehouses on November 30 was 14,292 tons, as compared with 25,650 tons at the end of 1920. Some of this ore may have been smelted but not shipped and thus may be included in smelter stocks.

Early in January zinc concentrates containing 60 per cent of zinc were selling in the Joplin district at \$28 a ton, having dropped from \$60 a ton at the beginning of 1920. The price dropped to \$21 by the beginning of March, rose to \$26 by the beginning of May, dropped to \$21 by the middle of June and remained at that point until late in August, when it reached bottom at \$20 a ton. Through the last quarter of the year there was a considerable improvement in price and at the end of the year concentrates were selling at \$28 to \$30 a ton. The lack of demand led to a considerable storage of concentrates at mines, and the stocks of concentrates in the Joplin district were estimated at about 70,000 tons and those in the Upper Mississippi Valley region at about 25,000 tons, figured as 60 per cent concentrates. Stocks in other districts probably brought up the grand total for the country to 150,000 tons. Even so, this quantity was small in comparison with the stocks of Australian zinc concentrates, which were reported as 700,000 tons, containing about 47 per cent zinc. The Rhodesia Broken Hill district of Africa was credited with stocks of zinc ore amounting to nearly 50,000 tons.

The output of primary metallic zinc from domestic ores in 1921 was about 194,000 tons and from foreign ores about 2500 tons, a total of 196,500 tons, as compared with 450,045 tons from domestic ores and 13,332 tons from foreign ores, a total of 463,377 tons in 1920. In addition to primary zinc there was an output of about 17,000 tons of redistilled secondary zinc, as compared with 21,371 tons in 1920, making a total supply of distilled zinc and electrolytic zinc in 1921 of 213,500 tons, of which 31,500 tons was high grade

and intermediate, 32,000 tons select and brass special, and 150,000 tons prime western. The output of the corresponding grades in 1920 was 114,806, 59,811, and 310,331 tons, respectively, a total of 484,748 tons. Of the total output of primary zinc in 1921, about 48,000 tons was made in Illinois, as against 109,056 tons in 1920; 40,000 tons in Oklahoma, as against 110,500 tons; and 36,000 tons in Pennsylvania, as against 74,234 tons.

The imports of foreign slab zinc amounted to 6674 tons, as compared with 15 tons in 1920. Of these imports England furnished 4200 tons, Germany 1456 tons, Netherlands 560 tons, and Belgium 452 tons. The condition of the world market in the last 4 months of 1920, which permitted the sale in the United States of domestic zinc that had been previously exported, continued through the first quarter of 1921, during which period 731 tons of zinc were returned as against 8162 tons in 1920. Not included in the imports given above are 6529 tons of sheet zinc imported and entered for consumption in the first 9 months of 1921. But a few hundred tons of sheet zinc has been imported annually heretofore, and but a few tons since 1915.

The exports of zinc made from foreign ores were about 1260 tons and those of zinc made from domestic ores were about 3200 tons, as compared with exports of 28,368 and 85,898 tons, respectively, in 1920. The exports of domestic zinc included about 1800 tons of sheet zinc, as against 11,852 tons in 1920. The stocks of zinc at smelters and in warehouses at the end of November was about 74,000 tons, as against 94,747 tons on June 30, 1921, and 71,037 tons at the end of 1920. The apparent consumption of primary zinc during 1921 was about 196,000 tons, as compared with 323,044 tons in 1920.

At the end of November 38,700 retorts were reported in operation out of a total of 150,462 retorts, as compared with 36,000 out of 123,528 on June 30, 1921, and with 56,197 out of 158,625 at the end of 1920. Advances late in December put the number of retorts expected to be in operation at the end of the year at about 41,500, or a little more than one-fourth of the total.

The average quoted price for prime western zinc for immediate delivery at St. Louis in 1921 was nearly 4.7 cents a pound, as compared with an average selling price for all grades of 8.1 cents in 1920. The price of prime western zinc began the year at 5.6 cents in the St. Louis market but had declined nearly to 4.6 cents by the middle of April. After a slight recovery the price continued to decline until 4.25 cents was reached at the midyear. After remaining practically stationary for three months, the price rose through the last quarter of the year and closed at about 4.7 cents. From the middle of May until the last of October the average weekly quotation for prime western zinc was lower than that for lead.

FOREIGN ZINC INDUSTRY. The output of electrolytic zinc in British Columbia in 1921 is given as 26,500 short tons, as compared to 16,798 tons in 1920. The zinc smelter output of Belgium, in 1921, as estimated from the output for 10 months was about 70,000 short tons, as against 92,880 short tons in 1920. The world's smelter output of zinc in 1921 is estimated at about 400,000 metric tons, of which the United States smelted 45 per cent, as against a little over 700,000 metric tons in 1920, of which the United

States smelted 60 per cent. See also article LEAD at end.

ZIONISM. See JEWS.

ZONING. See CITY PLANNING.

ZOOLOGY. No publication of outstanding importance in the field of Zoology appeared in 1921, but there was the usual output of morphological and experimental research-papers in the journals. The German journals seemed to have returned to their prewar activities, but what impressed the reviewer most was the large number of articles which were themselves reviews rather than records of original research. If the following summary seems too much limited to the English and American publications, it is because to the reviewer these seemed to contain the larger number of articles of general interest.

GENERAL. Pearl gave the Lowell lectures on "The Biology of Death." Since Protozoa are potentially immortal Pearl thought that it is incorrect to speak of death as inevitably bound up in protoplasm. This conclusion is strengthened by the fact that in some cases it has been found possible to keep differentiated tissue cells alive in an appropriate medium outside the body for a longer period than they would naturally have lived in it. Death is the penalty we pay for the differentiation of cells which makes possible the complex differentiation of function in the different tissues of the higher organisms. Death is really the result of an organic disharmony among the cells and follows physico-chemical changes in accordance with ordinary physico-chemical laws. For each organism there is a specific longevity determined by its inherited physico-chemical constitution. The visible cytological changes in protoplasm and nucleus which have been described as causes of senescence are really effects and not causes. Comparison of mortality studies of the present time and that of the time of the Roman Empire show that the expectation of life is much greater now than it was then, a result due either to improved living conditions or to a change in the inherited constitution of the race. Pearl grouped mortality statistics from different countries so as to show what he thought was their biological basis and found that there is very great similarity between them, which would indicate that they are not due to environmental conditions. A study of *Drosophila* and of man have shown that longevity is inherited in a mendelian fashion, and Pearl thought this inherited factor is of much more importance than any other in determining longevity.

ZOOLOGICAL SOCIETIES. The American Society of Zoologists met with the American Society of Naturalists and a number of other scientific societies affiliated with the American Association for the Advancement of Science at Toronto, from December 27 to December 30. The President of the Zoologists was Professor C. A. Kofoid. Professor E. S. Goodrich was President of the Zoology section of the British Association for the Advancement of Science which met at Edinburgh.

BIOLOGICAL LABORATORIES. In connection with the Miami aquarium at Miami, Fla., there was opened in 1921 a research laboratory for the study of marine life, having accommodations for ten investigators. The Harpswell Laboratory was founded in 1898 by J. S. Kingsley at South Harpswell, Maine, and in 1913 was incorporated. In the spring of 1921 this institution

became a member of the "Wild Gardens of Acadia" corporation and was allotted land on Mt. Desert Island where it had established the Weir Mitchell Station. In the summer of 1921 this was run as a teaching laboratory with Professor Ulric Dahlgren as Director. The "Concilium Bibliographicum" founded and administered by H. H. Field with headquarters at Zürich, has been seriously hampered by war conditions, and with the death of Field, early in 1921, its affairs came to be in a very bad condition. It was later announced that a temporary reorganization had been effected with Professor J. Strohl of Zürich as Acting Director, and that financial assistance had been given by the Swiss government, the city of Zürich, and the Rockefeller Foundation.

GENETICS AND EVOLUTION. Results of cytological research for the year strengthened the theory that the chromosomes are the carriers of the genes which determine the characteristics of the offspring. Bateson, in the Croonian Lecture (*Am. Nat.*), reiterated his earlier statements that genetic speculation has outrun cytological evidence. He called attention to the fact that the results which seem to demonstrate the importance of the chromosomes have been obtained on only one animal (*Drosophila*) and while segregation may occur in animals at the time of maturation it does not do so in plants. Later, after having studied Bridges' preparations of chromosomes, Bateson, in a lecture given before the American Society of Zoologists on December 28, announced his complete conversion to the chromosome theory. As Bateson was the last of the opponents of the theory it would now appear to stand on a firm foundation. Schmidt (*Travaux Lab. Carlsberg*) stated that in *Lebistes reticulatus*, a small Trinidad fish, the males of certain races have a black spot on one fin which does not appear in the female and is not transmitted through the female as are certain other sex-linked characters. Castle (*Science*) showed that these facts could be explained on the assumption that the gene for this character is carried in the "Y" chromosome, which is generally regarded as "empty." Castle suggested that the X chromosome originally came from the cytoplasm into the nucleus and was at first a determiner of femaleness. Later this became duplicated and is found in both sexes, transmitting the sex-linked characters as now occurs in *Drosophila* and man. The Y appeared later and the form of sex-linked inheritance which characterizes some birds and moths could be explained by assuming that their genes are carried by the Y chromosome.

Two years ago Guyer published results on experiments with rabbits. He found that if he injected crushed eye lenses of a rabbit into a fowl, an "anti-body" for the lens would appear in the fowl's blood. If this anti-body be injected into the blood of a pregnant rabbit at about the tenth day of pregnancy when the lenses are being formed in the embryo, some embryos will die, but those that live have defective lenses or other eye defects attributable to defective lenses. Later study showed that this defective condition of the lens is inherited by later generations, and this inheritance has in general the character of a mendelian one. Breeding of a defective male to a normal female gives normal offspring, but if the female of this generation is mated with a defective male, defective young appear. Apparently the

specific anti-bodies can produce specific changes in the germ cells. Further study showed that specific anti-bodies may be produced in the body by an injection of its own tissues, and thus it is assumed that any alterations in the body that can give rise to anti-bodies or other active agents might induce changes in the germ. Guyer pointed out the possible interpretation to be put on these results in connection with the much disputed question of the inheritance of acquired characters. May it not be possible that the use of an organ will set up changes in the composition of the blood serum producing specific effects on the germ plasma and repeating in the next generation the modification produced by use or disuse in the preceding generation? Guyer thought that a serological change might be sufficient mechanism for the production of changes in subsequent generations.

In his address as President of the Zoology section of the British Association for the Advancement of Science, Goodrich (*Nature; Science*), spoke on "Some Problems in Evolution." Goodrich emphasized the evident fact that if a character is to appear in any generation, there must be not only the hereditary element to call forth that character but favorable environmental conditions as well. (Green plants inherit the ability to form chlorophyll, but this will not appear if the plant is kept in the dark.) What is really transmitted is the complex of germinal factors, not the characters themselves. These environmental stimulants may be either external or internal, illustrations of the latter being the hormones secreted by the body itself which modify its characters. The real difficulty of the evolutionist is to solve the problem of the nature of the germinal factors and of the origin of the differences between them. The question of how an organism acquired new factors Goodrich thought is still unsolved and little progress has been made in solving this problem since Darwin's time. He discussed the results of Guyer (see above) and while he concedes their importance, thinks that they do not argue for an inheritance of an acquired character. These results show that a destructive effect may be produced, but do not, in his opinion, demonstrate the possibility of a constructive one.

Gerould (*Jour. Exp. Zool.*) reported on the appearance of a mutation in the caterpillar of *Colias philodice* which is usually grass-green, but the mutated animals were a bright blue-green. Breeding experiments showed that the blue-greens are recessive and thus appear only when homozygous. According to Gerould two non-inherited pigments form the basis of the color of this caterpillar, the "xanthophyll," a yellow pigment, and the "chlorophyll," a blue-green one. Both are derived from the chlorophyll of the food plant. The mutant evidently carries an enzyme which acts as a decolorizer (inhibitor) of xanthophyll which probably acts through the nuclei of the cells of the intestinal wall upon the digesting chlorophyll and thus on the blood itself. It affects every stage in the life history of the insect.

INTERNAL SECRETIONS. The study of internal secretions and their effects on the development of the body and its parts, received much attention during the year. In the YEAR BOOK for 1917 was reviewed the work of Lillie on free martins, which showed that when a male and female twin calf were developing, hormones from the male acted on the female so as to produce sterility as well as

to prevent the development of secondary sex characters. In the *Journal of Experimental Zoology*, Minoura, Willier, and Moore writing from Lillie's laboratory at the University of Chicago, reported confirmation of his results. Minoura grafted portions of the ovaries or testes of chickens of various ages on to the allantoic membrane of a developing chick. In successful experiments the results indicated that the secretion of the gonad of the same sex increased and that of the opposite sex decreased the sex development and differentiation of the individual upon which the graft was made. Indications of this condition were found in the existence of a gonad of the male type and differentiated müllerian ducts of the female type in the same individual; in an alteration of the size ratio of the two testes; and by the persistence of the right gonad in the female type embryo, the normal condition being that this is lost in the adult. As in the free martin, these experiments show that sexual differentiation may be reversed. In a histological study of the free martin gonads, Willier found that a transformation from an ovary might proceed to a morphologically complete condition, though this was never functionally mature. Moore transplanted gonads from one set into the other in rats and guinea pigs. In the rats he found no interference with the development of the proper sex organs due to the grafting of the one of the opposite sex and he thought there is no reason to assume an antagonistic effect of the one sex on the other. In guinea pigs, he found that while grafting an ovary into the male was followed by changes in the external sex characters such as an increase in the size of nipples, there was no evidence of any psychical change. Grafting of testes into the female was followed by both structural and psychical changes, the animals behaving like a male both to other females and to males.

Uhlenhuth (*Am. Nat.*) discussed the condition of the Texas cave salamander, *Typhlomolge rathbuni* which is blind, colorless, and never metamorphoses. It has been shown to be without a thyroid, which earlier work (see YEAR BOOK for 1918) indicates may be responsible for the absence of metamorphosis. Uhlenhuth thinks that this thyroidless condition may also be responsible for the blindness and the lack of color.

Atwell (*Endocrinology*) reported that distinct pigmentary changes follow removal of the pineal body and the epithelial hypophysis in the frog tadpole, and described the condition of the chromatophores of various kinds which lead to the formation of the "silvery" color under these conditions. Removal of the pineal gland alone, did not set up any of these changes. Rasmussen (*Endocrinology*) described in detail the structure of the hypophysis of the woodchuck during hibernation. He found that it undergoes no change during this time, but that at the rutting season it becomes much larger. Swingle (*Jour. Exp. Zool.*) stated that frog larvae, grafted interperitoneally with the pars intermedia of the hypophysis became much darker, control specimens grafted with other tissue showing no change. The changes last for 40 days at the longest, and dissection showed that the grafted tissue has been absorbed at this time. Swingle also found that grafting the pineal gland of a reptile into the darkly pigmented larva of a frog would be followed by a temporary change to a lighter color.

Courrier (*Comptes Rendus*) in an attempt to

verify previous work on parasitic castration (see YEAR BOOK for 1914) of crabs, studied 66 male *Carcinus* and found no constant relation between the parasitized condition and the assumption of female characters. His general conclusion was that the sex cells do not condition secondary sexual characters and that where a change occurs it is due to the secretion from some other organ. Courrier also (*Comptes Rendus*) found that in the fish the secondary sexual characters are due to the secretion of a gland which develops after spermatogenesis is completed.

ANIMAL REACTIONS. Crozier and Arey (*Jour. Exp. Zool.*) reported on observations made at Bermuda on the small nudibranch mollusk *Onchidium*. The animals live in holes in the rocks from which they wander out as the tide goes down, returning after a while to the nest. This return is always made to the same nest, showing a definite homing ability, and they all move at the same time. They possess definite repugnatorial glands on the edge of the mantle, which give off a secretion that may be thrown to a distance of 10 times the length of the animal and which experiments showed has on the human tongue an effect like that of wild mustard. Meat smeared with this secretion was refused by fish. The authors thought it was not so much to protect the animals against being eaten as to prevent larger animals from hitting against the *Onchidium* and knocking it into the water from which it could not return to its nest. The normal animal orients itself with the head against the wind, but this orientation is lost if the tentacles are cut off. As bearing on the value of experimental results obtained in the laboratory, the authors found that the "trophic" responses of the *Onchidium* occur under laboratory conditions, but do not appear in their ordinary habitats. Individuals picked up from one side of the nest and placed on the opposite side will go directly to the nest, showing a definite homing sense. The authors thought that a sense of smell is employed in this homing.

In opposition to Loeb and others who believe that phototropism in animals is an orientation due to a constantly acting stimulus, Mast believes that what he calls a series of "shock reactions" is really what occurs and that in orientation in insects which Loeb and his school have used as examples, the light does not really act continuously. Mast (*Jour. Exp. Zool.*) reported on the reactions to light of the tadpoles of the Ascidians. In these tadpoles a decrease of illumination will stimulate a resting individual to action, but an increase has no effect. If the tadpole is active it is stimulated by both increase and decrease. The animals may be either photonegative or photopositive, the reactions being due to the illumination of the nerve endings on the inner surface of the pigment cup of the eye. Orientation is the result of shock reactions caused by alternate shading and illuminating of these nerve endings. The animals remain oriented not because of a constant stimulation, but because once oriented they go in a straight line.

Wheeler (*Jour. of Comp. Psychol.*) reported experiments on the phototropism of the land snail *Helix aspersa*. In *Helix pomatia* there is according to previous investigators, some doubt whether the animals can see, in spite of the fact that they possess well developed eyes. Wheeler found that *Helix aspersa* is normally negatively phototropic,

but becomes indifferent to light if the eyes are cut off. There is no evidence that the skin is sensitive to light rays, and the eyes are the light perceiving organs. In a series of notes on some problems of adaptation, Crosier (*Biol. Bull.*) reported that in the Bermuda fish *Ogilbia*, there is a true skin sensitiveness to light stimulation, a condition previously recognized in only one other fish; in the mollusk *Lima* there is a negative phototropism, the animal orienting itself easily by the long foot, which may itself be photosensitive, and is thrust out and bends the shell so as definitely to orient the animal; in *Actinia bermudensis* there is no evidence for a tidal rhythm such as has been described in other Actinians. It seems probable that the habit of closing when uncovered is beneficial, but there is no evidence for a closing and opening dependent on stages of the tide. Young specimens who have never experienced the tidal rhythm, act in the same fashion as adults.

TWINNING. Newman (*Jour. Exp. Zool.*) experimentally produced twins in echinoderms, defining as twinning any duplication of parts in an individual as well as complete separation. In all methods of producing these twins the common factors were the retardation of development and loss of precise axiate organization at some critical time and a redifferentiation but because the unity of organization has been lost, the new differentiation proceeds along two or more axes or gradients; as a result duplication of parts occurs. Referring to recently published work of Davenport indicating that this type of twinning is inherited in the male line, Newman shows how relative incompatibility between the egg and sperm might set up the retardations here mentioned, various degrees of incompatibility leading to various degrees of separation in the twins. Zeleny (*Science*) showed from statistics that a simple ratio exists between the number of twins and of triplets in a large number of births, such that if the ratio of twins to the total number is $1/n$ that of triplets will be $1/n^2$. In multiple ovulation it appears that only one ovum is discharged at the same time, and it seems as if some secretion from this ovum may inhibit the discharge of another. Once in n times this inhibitor fails to appear. The chance that two supernumerary ova would be discharged at the same time would be as 1 to n^2 . Zeleny supposed that in monozygotic twins two embryonic areas appear at the same time, an inhibiting influence which is normally produced by the one which first starts and which normally prevents the formation of a second area having failed to appear. A similar conclusion was reached by Stockard (*Am. Jour. Anat.*) who concluded from a study of a large number of artificially produced monstrosities that development normally consists of a series of processes more or less frequently interrupted by periods of quiescence, and that if anything happens to interfere with the normal arrangement of these processes there is an interference with the rhythm which leads to two or more centres of development, and thus double monsters occur.

Cytology. Painter (*Science*) found in testes of both white and colored men, using material that was preserved under most favorable conditions, evidence for the presence of both X and Y chromosomes, this being in opposition to earlier work which indicated that only the X

is present. Painter thought that 46 is the total number of chromosomes in man. In a number of lizards Painter found (*Jour. Exp. Zool.*) evidence of the presence of an X chromosome, and also a condition which seems to be limited to the lizards, in which there are two sets of chromosomes, macrosomes, and microsomes. Painter found further, that the chromosomal characters are as indicative of relationship as are external features, confirming results previously obtained by McClung in the Orthoptera.

PROTOZOA. Woodruff (*Jour. Exp. Zool.*) described races of *Paramacium* and of *Oxytricha* in which no micronucleus appeared. He concluded that this is an abnormal condition resulting from a failure to form a micronucleus at a conjugation stage. These amiconucleate forms are able to carry on ordinary vegetative processes but apparently cannot conjugate. Students of *Paramacium* have reached divergent conclusions as to the necessity for conjugation, some maintaining that conjugation is an essential process and others holding that under proper nutritive conditions it does not occur. Hopkins (*Jour. Exp. Zool.*) found that different strains of the same species vary decidedly in this respect both when reared under similar environmental conditions that are normal to the species, and when subjected to similar experimental conditions such as treatment with salts, etc. Some races do not conjugate during long intervals of time, and the process might possibly be indefinitely postponed, but many of these can be induced to conjugate by subjecting them to an interval of reduced nutrition.

Hegner (*Am. Nat.*) found a high degree of correlation between the amount of nuclear material and the cytoplasm in *Opalina*. An increase in cytoplasmic mass acts as a stimulus for the division of the nucleus. Kepner and Whitlock (*Jour. Exp. Zool.*) found that the feeding reactions of amoeba are too qualitative and too easily adapted temporarily to new conditions to be capable of explanation on physical and chemical grounds.

Schaeffer published in book form under the title of *Amoeboid Movement* a summary of his researches on amoeba of various species. Structurally Schaeffer distinguishes between an outer ectoplasm, an inner entoplasm, and a hyaloplasm, but in his discussion he confused the ectoplasm, and hyaloplasm, so that his distinction between the two is not clear. Whenever a pseudopodium is being formed there is a transformation from entoplasm to ectoplasm at the pseudopodium. This transformation is really a change from a "sol" to a "gel" condition, and in this transformation the energy required for the movement is set free. At the same time, ectoplasm is being transformed into entoplasm at the posterior end of the amoeba. There is an outer surface film on the amoeba which is constantly moving forward from the posterior end of the animal, being constantly destroyed anteriorly and renewed posteriorly. This is evidently a surface tension phenomenon. While Schaeffer's meaning is not very clear on this point, he apparently thinks that this surface tension has some part to play in the amoeboid movement. In the matter of the taxonomy of amoeba, Schaeffer took issue with other writers who regard this organism as very variable, and says that in respect not only of structure but

in reactions to stimuli the species of amoeba are as sharply separated from one another as in any other group of animals. If not interfered with by outside stimuli the path of an amoeba is zigzag, which Schaeffer interpreted as an attempt to move in the spiral fashion of ciliated protozoa, the zig-zag movement being the projection on a plane surface of the spiral. Schaeffer regarded the tendency of a blindfolded man to walk in circles as a similar projection and thought he had demonstrated the fundamental similarity between the spiral movement of the amoeba and that of the man.

ANNELIDS. Gross (*Jour. Exp. Zool.*) stated that contrary to the usual belief, the common *Nereis virens* of the eastern coast of the United States is a vegetable feeder and while it is responsive to chemical stimulations, the chemical sense plays very little part in procuring food. Systematic papers on the Polychaetes were published by Benham on the annelids of the Australian Antarctic Expedition, Series C, Vol. VI, part 3, and by Treadwell on the West Indian Leodidae, Publication No. 293 of the Carnegie Institution of Washington.

MOLLUSKS. Allen (*Bio. Bull.*) reported results of a study of the food relations of some fresh water mussels. Feeding is nearly a continuous process and the flow caused by the ciliary movement is not affected by any change in the position of the animal. Feeding is the taking in of microscopic animals by means of a current caused by ciliary action. This ciliary action is not in any way affected by changes in the position of the animal and is nearly a continuous process. The control of the amount of food which shall be digested and absorbed into the blood is through a regulation of the amount of digestive ferment secreted rather than through any variation in the amount of food taken in. The gills are of considerable importance in sorting food materials. The condition of the crystalline style is an indication of the digestive activity of the animal. This style has a number of functions in the Unionidae. Allen thought that it is in part a reserve of nutriment, in part a source of enzymes for starch digestion and that it rotates so that its inner free end acts like a brush in sweeping food into the proper channels and as a substitute for peristalsis in mingling the food with liver secretions. Arey (*Jour. Exp. Zool.*), reported on the glochidia of fresh water mussels and their mode of attachment to fishes. Attachment is in response to tactile stimulation through the hair cells of the mantle. The overgrowth of cells of the gill which covers the glochidium and forms the cyst is a reparation process on the part of the cells and not due to any vital influence of the glochidium since it will occur if metal clips are fastened to the gill.

INSECTS. Lichtenstein (*Comptes Rendus*) reported on the biology of a new species of a Chalcid *Habroclytus*. The parasite punctures the host through its larval case and through the opening thus made the body fluids of the host flow out and are eaten by the parasite. Later another opening is made and the egg laid in the host. The author thinks that the primitive function of the ovipositor is to procure food, the egg laying having been developed later.

Jacques (*Science*) reported the discovery of the larva of the honey-locust borer, *Eburia quadrigeminate* in the wood of a book-case where it

must have been for at least 40 years. This seems to establish a record for longevity of insects.

It was announced in 1921 that the gypsy moth had appeared in New Jersey in 1920 and that \$112,000 was appropriated by the legislature for the expense of fighting it. Brues (*Am. Nat.*) stated that grouping of insects according to their supposed food habits is not always accurate, for certain ones which seem, respectively, to be saprophagus, coprophagus, etc., really are not feeding upon these substances at all but on bacteria and yeasts which are growing on the supposed food. Adaptation between a parasitic insect and its host, is, according to Brues a matter of evolution, possibly through natural selection, for the parasitic insect is immune only to the body fluids of its host and not to those of other insects. Adaptation of this sort might have been more easily acquired between near relatives than between animals farther apart in the scale. Patterson (*Am. Nat.*) found that in the polyembryonic hymenopteron, *Platygaster* the broods have an average size of 13.5 all of which have come from a single fertilized egg. In some cases the brood is purely female, in others there are some males, but never as many males as females. He considers that some abnormal behavior of the chromosomes is responsible for this condition. Bodine (*Jour. Exp. Zool.*) reported experiments whose results indicated that the metabolism of an insect has a much greater resemblance to that of mammals than has previously been supposed. The percentage of water in animals varies with the species, and exposure to low temperature causes a decrease in water content, thus preventing freezing. Starvation has its greatest effect in causing a loss of water. He also found that younger animals have a higher rate of respiratory exchange than do the older ones. Burge and Burge (*Jour. Exp. Zool.*) from a study of the potato beetle, concluded that a catalase is responsible for the elimination of oxygen, that this increases from youth to the adult condition and decreases again in old age.

Whiting (*Biol. Bull.*) reported on experiments on the wasp *Hadrobracon brevicornis*. In a black-eyed stock he found that generally male or female offspring were produced from mated and unmated females in proportions which were in accord with the theory of Dzieron, that females arise only from fertilized eggs, males from unfertilized. Whiting found, however, that results of breeding the original black-eyed female with a male mutant having "orange" eyes indicated in a certain number of their descendants that a male might develop from a fertilized egg. In these the sperm apparently operated on only a small part of the individual, so that it was really a mosaic, due to an imperfect fertilization.

Minnich (*Jour. Exp. Zool.*) reported that the butterflies *Vanessa antiopa* and *Pyrameis atalanta* discriminate between chemical stimulations by chemoreceptors located on the tarsi. In *Pyrameis* and probably in *Vanessa* also, these receptors are located on all four tarsi. An important and possibly the only rôle of these organs is in connection with food substances and water. They are able to function in the absence of antennae, labial, palpi, and the rudimentary fore legs of *Pyrameis* and appear to be the organs of taste.

SPIDERS. In *Science*, Reese reviewed the evidence bearing on the question of the poisonous

nature of the bite of spiders and gave very definite evidence that the small spider *Latrodectus* is capable of giving a fatal bite to man. While not all of the bitten individuals died, there was very severe poisoning accompanied by much pain. The spider in question is a small one, and frequents outhouses in the country.

ECHINODERMS. An important publication was an elaborately illustrated paper on the Echinoderms of Torres Strait by H. L. Clark. This paper is mainly systematic, but Clark drew the general conclusion that in Mesozoic times the eastern coast of Queensland had no echinoderm fauna but that a later depression of the land east of New Guinea established a connection with the Pacific through which the echinoderms passed.

FISHES. Everman (*Sci. Month.*), stated that unless some remedy is soon found for the present conditions, the Alaska salmon fisheries are doomed to disappear. His remedy was to determine the maximum capacity of the spawning area and then, by means of easily applied methods of counting, to allow enough fish each year to pass to the ground to use this spawning area, letting the fishermen catch what are left. Owing to lack of funds the laboratory of the United States Bureau of Fisheries at Woods Hole was closed during the season of 1921. For the same reason the Bureau of Fisheries steamer *Albatross* was taken to Woods Hole in October, and put out of commission. The first meeting of the International Committee on Marine Fishing Investigation was held at Montreal on June 23 to discuss questions of interest to the Canadian and United States and Newfoundland fisheries industries.

Hubbs (*Biol. Bull.*) described the life history of *Amphigonopterus aurora*, a Californian viviparous fish. In this fish copulation occurs in the summer and the sperm are retained by the female until late autumn or even the spring, so that a full year may elapse between copulation and the birth of the young. The embryos are nourished by nutritive ovarian fluids which are carried through the alimentary canal. Respiration is over the surface of the body and the fins. The smaller and younger females give birth to young later in the season than do the older and larger ones. Hubbs found that the "annulus" or place where the concentric lines on the scales are nearest together, is formed during the winter. This gives an accurate method of estimating the age of young fishes. A deep sea fisheries expedition was fitted out by Denmark in 1921, one of its objects being to discover the breeding place of the eel. This is supposed to be at 500 fathoms, near the Azores, but no accurate information is at hand concerning it.

MAN. An important discovery of the year was that of a fossil human skull found in northern Rhodesia. The cranium is practically complete, and is apparently of a lower type than any Neanderthal skull yet discovered. The specimen is at the British Museum, where it will be studied by Woodard, Keith and Smith, all recognized authorities on this subject.

ZR-2 DISASTER. See AERONAUTICS.

ZULULAND. A portion of the province of Natal in the Union of South Africa; annexed to Natal, Dec. 30, 1897. Area, 10,424 square miles; population (1911), 219,606.

